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TO THE BUREAU OF LAND MANAGEMENT

ANNUAL PROGRESS REPORT
1982 RESULTS

VOLUME II
PRECIPITATION, PRODUCTIVITY, AND PRODUCTION SECTION

PHENOLOGY AND PRODUCTION STUDIES ON
SEMIARID SHRUB TYPES

SUBMITTED BY WYOMING AGRICULTURAL EXPERIMENT STATION
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PHENOLOGY AND PRODUCTION STUDIES ON SEMI-ARID SHRUB TYPES[1]

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PRECIPITATION, PRODUCTIVITY AND PRODUCTION SECTION

BY

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and J.L. Mulholland

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[1] Published with the approval of the Director, Wyoming Agricultural Experiment Station, as Scientific Report No. 1231.

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SECTION III

PRECIPITATION PATTERN STUDY

1982

Introduction

During 1960 over 70 gauges were installed at 6 to 12 mile intervals throughout the Big Horn and Wind River Basins. Since that time approximately 20 gauges in the Big Horn Basin were discontinued but some additional 120 gauges have been installed, primarily by the BLM. The numbers of UW-BLM gauges and U.S. Weather service stations by county in the state that are reported in this project are presented below.

	UW-BLM		US Weather Service
Park	19		8
Big Horn	31		6
Washakie	27		4
Hot Springs	27		4
Fremont	52		15
Natrona	8		8
Carbon	13		6
Sweetwater	27		4
Sublette	4		4
Uinta	2		3
Lincoln	7		3
Total	217	+	65 = 282

The majority of the UW-BLM gauges are sheet metal cylinders, 12" in height and approximately 2.79" in diameter. Precipitation is read to inches of rainfall by measuring the water in ml. The gauge diameter allows one hundred ml of water to be equal to 1" of precipitation. In the Big Horn Basin the BLM utilizes a number of commercial gauges as well as the UW gauges, the latter which are available from the Department of Range Management at the University Wyoming in Laramie. Of the total 217 UW-BLM guages, 62 were read by the Department of Range Management and 155 by BLM personnel.

Seasonal dates for reading the gauges were established in 1960 based partially upon the traditional four seasons, occurrence of significant moisture periods, and average earliest and latest dates when roads would be passable. The dates selected were April 15, June 30, August 30, and October 15. The winter period thus extended from October 16 of the previous year to April 15, the spring period from April 16 to June 30, summer from July 1 to August 30, and fall from September 1 to October 15. In recent years precipitation recordings have been increased to monthly readings during the growing season (May-October) in the Big Horn Basin.

The UW has also established an additional gauge at each of the 12 exclosures where intensive phenology and productivity studies were conducted. These gauges were read approximately every two weeks during the growing season in conjunction with phenology and productivity measurements. They were established to provide a separate data set since frequent readings of a single gauge could easily result in an error. The data from the two gauges are being compared for any discrepancy that may arise from mishandling.

The total of 65 Weather Service Stations noted above, represents most, but not all, that are in operation in each county. Data from many recording stations is often difficult to obtain at the time of our report compilation.

The Weather Service employs gauges with a larger orifice and are presumably most accurate. Long term records of the UW gauges and some of the BLM Taylor gauges however, show little difference except for snow that sometimes has not been recorded as accurately as with the larger recorders. The difference has seldom been as much as 10% of the total and thus is assumed to be negligible for general comparative purposes.

The total complement of 282 rain gauges distributed over the more xeric portions of western Wyoming provides a data set unequalled. This, combined with the long term herbage production records (obtained annually on some forty sites for as long as 21 years) and intensive phenology and productivity measurements (obtained at 12 locations for 10 years), provides a volume of data extremely useful for combined evaluation of precipitation dynamics with herbage production, plant development rates, and vegetation productivity.

1982 Results

Table I shows the 1982 precipitation data from the 217 gauges read by University of Wyoming and Bureau of Land Management personnel. In Table II the data of 65 U.S. Weather Service Stations are compiled in the same four time periods as those of Table I. Long term averages are presented in Table I but in Table II for the U.S. Weather Bureau Stations, the values under the heading LTA or Long Term Average for the most part represent 30 year standard normals established by the US Weather Service. Supplements A and B of Table II present additional information. Long term averages are given for a number of stations which have been in existence for less than 30 years. Values for 30 year long term averages for a few stations with a history of more than 30 years is also given.

Precipitation for 1981 in the Big Horn Basin was one inch, or almost 11%, greater than the long term average. Of the 99 UW-BLM gauges in the Big Horn Basin, 69 exhibited greater than average and 30 less than average precipitation. Park County and Washakie counties, with 1.70" and 1.55" above average precipitation, were much more mesic than usual. Both were 118% of normal. Big Horn and Hot Springs counties were 105% and 104% of normal, respectively.

During the years 1980, 1981 and 1982 annual precipitation in the Big Horn Basin was about 108% of normal each year. Interesting shifts of precipitation over the area have been noted. In 1980 ppt in Hot Springs County was greatest and decreased northward. In 1981 greatest values were noted in Park County and decreased southward. During 1982, as noted above, Park and Washakie Counties were 18% above normal while Big Horn and Hot Springs Counties were only 5% above. Greatest moisture occurrence above normal was noted during the fall season.

Precipitation data recorded at the US Weather Service Stations in the Big Horn Basin (Tables II and VII) were 114% of normal, about one inch greater than the 10.1" recorded at the UW-BLM gauges. Overall mean values for the entire 121 gauges in the Big Horn Basin were 111.3% of normal at 10.27" annual precipitation. In the Wind River Basin total mean annual moisture 8.59" was 99.2% of normal at the 52 UW-BLM gauges. Fall season precipitation was much above normal while winter and spring were dry. Even though average annual precipitation was slightly below normal only 21 of the 52 gauges recorded less than long term average amounts. The US Weather Bureau gauges of the Wind River Basin were 102% of normal, .33" greater than the long term mean of 10.47" for 15 stations. The total 67 gauges in the Wind River Basin recorded 9.01" of precipitation, 99.9% of normal. Fall season moisture was considerably above normal.

From the eight UW-BLM gauges in Natrona County summer and fall moisture was above normal and mean annual precipitation was 115% of normal. The UW-BLM gauges in central Wyoming including Carbon and Sweetwater counties precipitation was 108% of normal. The 12 US Weather Seavice gauges of the Platte Grainage recorded 125% of normal. This greater amount occurred primarily as a result of differential rain gauge location and because the latter set recorded extremely abundant summer and especially fall moisture.

The UW-BLM gauges in western Wyoming including those in Sublette, Uinta and Lincoln Counties recorded 135%, 126%, and 142% of normal moisture. The USWB gauges in the Green River Drainage were computed to have received 130% of normal. Spring precipitation was much below normal at most locations. Summer and fall rain storms were abundant and combined with the somewhat above average winter precipitation resulted in annual mean records considerably above normal. The occurrence of excessive moisture during fall

1982 was noted by many in nearby eastern Idaho and Utah. Subsequent mud slides during spring 1983 occurred because of the deep moistening of soil profiles from the fall 1982 rains. Tables III and VII are a compilation by county and region of seasonal and mean annual precipitation of the UW-BLM and the USWB stations. The complete listing of six recording dates and precipitation at all UW-BLM gauges in the Big Horn Basin is given by county in Table IV. Note the two extra recording dates in June 1 and August 1 during the summer period of 1981.

In Table V data are shown describing the precipitation amounts and distribution for three vegetation types within the Big Horn Basin perimeter. These gauges are read by University personnel. The table was established initially as a student exercise to study precipitation relationships of the vegetation types in the area, the juniper woodland, sagebrush-grasslands and the desert shrubland. The precipitation of the juniper woodlands was 117.7% of normal at 15.16 inches. The precipitation of the sagebrush-grasslands area was at 112.5% of normal, with a total annual average of 11.90 inches, while the desert shrubland rain gauges were 111.8% of normal, with an average of 6.59 for the year. The overall average of these gauges was 10.93 inches, which was more than an inch greater than the long term average and resulted in an overall 111.8% of normal precipitation.

Precipitation values from US Weather Service Stations in Table VI are grouped by counties of the Big Horn Basin. The data are compiled with total recorded moisture for the long term traditional seasons.

Precipitation of the UW-BLM gauges is compared in Table VII to the US Weather Service gauges. These are also a recompilation of the various rain gauges and the general regions of the state and are utilized to examine the relationships of the data received from the UW-BLM gauges to that of the US

Weather Service gauges.

In general, the precipitation during 1982 as it was in 1981 also, was about 10% greater than normal. Significant patterns of differences in amounts of precipitation were noted in the Big Horn Basin. Greatest importance of the precipitation year was the uniqueness associated with the much greater than normal fall precipitation throughout the state. Summer rains above were average in some areas, especially in the southwest and western areas of the state. The year will be long remembered for the influence of fall moisture coupled with great amounts of snow pack which cause serious mud slides and floods during spring 1983.

TABLE I. Precipitation data for 1982 from University of Wyoming gauges for the periods October 15-April 15 (winter), April 15-July 1 (spring), July 1-September (summer) and September 1-October 15 (fall).

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Park County									
207	Beaver Slide BLM 7	S 4.09	S 3.85	2.33	2.78	S 13.05	+	11.87	5
147	Big Sage Exc.	2.15	5.48	2.84	2.59	13.06	+	8.42	14
261	Big Sand Coulee BLM T	S 1.15	S 3.05	2.95	1.50	S 8.65	–	8.69	3
146	Big Sky Exc.	2.05	4.54	2.71	2.15	11.45	+	8.80	14
100	Buffalo Basin Exc.	1.60	4.49	2.29	2.92	11.30	+	10.29	16
193	Canyon Creek	3.46	4.19	1.86	2.57	12.08	+	9.31	10
232	Coal Creek BLM T	S 1.60	S 3.72	2.29	1.85	S 9.46	+	9.24	3
259	Cottonwood Creek BLM T	S 1.25	S 4.00	3.35	1.10	S 9.70	+	8.32	3
266	Garland Oil Field BLM T	S .70	S 3.00	1.03	.70	S 5.43	–	5.86	3
145	Hilltop Springs	S 5.06	S 6.30	2.49	7.61	S 21.46	+	14.56	14
184	Little Dry Creek UW	1.58	3.87	3.38	E 2.00	E 10.83	+	8.77	8
260	Little Sand Coulee BLM T	S 1.95	S 4.10	3.55	2.20	S 11.80	+	9.83	3
263	Oregon Basin BLM T	S .70	S 3.70	2.85	2.05	S 9.30	+	8.82	3
262	Polecat Bench BLM T	S .50	S 3.25	2.41	.88	S 7.04	+	6.51	3
257	Sh.Fk.Meeteetse Cr. BLMT	S 1.65	SE 4.45	4.10	1.85	SE 12.05	–	12.82	3
192	Sky Line	3.68	3.80	1.99	2.53	12.00	+	8.64	9
206	Squaw Teats BLM 6	S 1.65	S 2.76	4.87	1.72	S 11.00	+	8.42	5
191	State Line	.61	3.14	2.04	1.64	7.43	+	6.51	9
264	YU Bench BLM T	S 1.30	S 2.84	2.50	1.70	S 8.34	+	7.39	3
	Mean n = 19	1.93	3.92	2.73	2.23	10.81	(+1.70[1/])	9.11	
	Percent by Season	17.8%	36.3%	25.3%	20.6%	100.0%			
			1982 Total Average is 118.7% of Normal				– 3 +16		

S = Precipitation of multiple periods separated by estimate
E = Estimate
SE = Combination separation and estimate

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Big Horn County									
176	Basin Flats Exc.	1.45	1.91	.93	1.21	5.50	–	7.03	16
256	Beaver Cr. BLM T	S 2.85	S 2.98	E 1.61	E 2.50	SE 9.94	+	9.82	3
123	Big Flat Exc.	1.19	1.67	1.23	1.02	5.11	–	6.29	15
219	Blue Ridge WRA 3	S 2.00	S 3.10	.93	2.02	S 8.05	+	7.69	4
220	Cedar Mountain WRA 4	S 3.35	S 5.35	1.40	2.25	S 12.35	+	10.01	4
208	Dead Indian BLM 8	S 1.36	S 2.12	2.44	1.83	S 7.75	+	6.59	5
212a	Dorsey Creek BLM 12	S 1.30	S 2.23	1.45	1.80	S 6.78	–	6.83	5
212b	Dorsey Creek UW	S .95	S 1.70	1.25	1.42	S 5.32	–	6.11	5
269	Dry Creek BLM T	S .85	S 3.30	2.10	1.15	S 7.40	+	7.00	3
211	Elk Creek BLM 11	SE 1.30	S 1.83	1.45	1.00	SE 5.58	–	5.80	5
194	Emblem Bench BLM T	S .55	S 2.78	1.75	1.15	S 6.23	+	5.29	5
24	Halogeton Exc. #1	1.58	2.45	1.51	.68	6.22	+	5.50	23
167	Halogeton Exc. #2	1.45	2.48	1.83	.80	6.56	+	6.09	11
168	Halogeton Exc. #3	1.48	2.37	1.53	.48	5.86	+	5.63	11
12	Horse Creek Exc.	4.08	4.36	1.58	3.80	13.82	+	11.23	23
113	Horse Haven Exc.	1.55	1.87	.89	1.20	5.51	–	6.96	16
21	Kane Deer Exc.	4.18	5.92	2.31	2.00	14.41	+	12.12	18
149	Kane GRI Exc.	3.77	5.83	2.16	2.22	13.98	+	12.56	15
116	Kane Seed Exc. UW	1.60	3.44	1.28	1.30	7.62	+	7.05	15
271	Kane Seed Exc. BLM T	S 1.40	S 2.20	1.30	1.10	S 6.00	–	6.77	3
268	Little Dry Creek BLM T	S .51	S 2.11	1.65	.68	S 4.95	–	7.08	3
224	Luman Creek WRA 5	SE 5.00	SE 5.50	1.95	3.65	SE 16.10	+	13.18	4
148	Medecine Lodge GRI Exc.	5.73	5.87	1.06	3.42	16.08	+	14.33	15
267	North Cowley BLM T	5.90	S 2.43	1.79	.68	S 5.80	–	6.50	3
270	North Shell Allot. BLM T	S 1.55	S 2.45	.99	1.42	S 6.41	–	7.16	3
175	Potato Ridge Exc. (CELA)	2.43	3.40	1.60	1.80	9.23	+	8.24	15
285	Potato Ridge Exc. WRA 1	S 1.95	S 3.00	1.34	2.01	S 8.30	+	7.70	4
23	Sheep Springs Exc.	5.40	5.03	1.65	3.30	15.38	+	13.98	22
227	Sheep Springs Exc. WRA 2	S 3.96	S 4.35	1.60	3.20	S 13.11	+	12.20	4
174	Sheldon Gulch Exc. (ATGA)	2.55	3.50	1.46	1.84	9.35	+	7.92	15
265	Whistle Creek BLM T	S .80	S 2.40	1.50	1.05	S 5.75	+	5.58	3
	Mean n = 31	2.23	3.22	1.53	1.74	8.72	(+.44[1/])	8.28	
	Percent by Season	25.5%	36.9%	17.6%	20.0%	100.0%			
			1982 Total Average is 105.3% of Normal				-10		
							+21		

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Washakie County									
1	Ant Hill Worland Exc.	1.50	2.28	1.22	1.42	6.42	-	6.49	23
150	Big Trail GRI Exc.	6.25	4.84	2.29	4.32	17.70	+	13.29	15
41	Bud Kimball Exc.	3.85	3.90	.80	2.80	11.35	+	9.35	21
7	Buffalo Creek Exc.	S 3.25	S 3.00	1.95	3.48	S 11.68	+	10.37	20
17	Burned Wagon Exc.	1.33	1.58	1.69	1.43	6.03	-	6.13	21
179	Chalk Exc.	1.19	2.33	.98	1.35	5.85	-	6.28	22
222	Cornell Gulch WRA 10	S 2.70	S 5.40	2.30	3.35	S 13.75	+	8.99	4
259	Cottonwood Creek BLM T	S 1.25	S 4.00	3.35	1.10	S 9.70	+	8.32	3
221	Cottonwood Oil Field WRA6	S 1.70	S 4.75	1.07	1.58	S 9.10	+	6.63	4
8	Demer Exc.	S 2.60	S 3.35	1.80	3.20	S 10.95	+	8.64	23
4	Dutch Nick Flat Exc.	1.41	2.49	1.65	2.18	7.73	+	7.21	22
199	East Ridge Exc. (See RG 206 Squaw Teats)								
15	15 Mile Study Pastures	1.19	2.33	.98	1.35	5.85	-	6.28	22
177	Hawk Exc.	1.44	1.57	1.75	1.54	6.30	+	6.16	21
166	Mills Burn Seed	4.78	5.17	1.86	3.80	15.61	+	12.81	12
185	Rice Burn Exc.	6.00	5.45	1.28	3.40	16.13	+	14.03	9
180	Sand Creek Exc.	1.90	2.77	1.81	1.78	8.26	+	6.91	16
226	Sand Draw WRA 8	S 3.55	S 3.65	1.70	3.20	S 12.10	+	9.02	4
209	Schuster Draw BLM 9	S 1.70	S 2.60	1.21	2.35	S 7.86	+	7.71	5
36	Smilo Exc.	3.07	3.55	1.47	2.65	10.74	+	9.31	22
210	South Fk.15 Mile Cr.BLM10	S 1.95	S 2.43	1.94	1.75	S 8.07	-	8.36	5
203	Spring Ck. Rd. BLM 3	S 4.75	S 7.65	3.30	4.50	S 20.20	+	9.21	5
228	Spring Ck. Oil Fd. WRA 7	S .95	S 3.62	1.26	1.45	S 7.28	-	9.69	4
181	Tolman Ridge Exc.	1.95	2.67	1.58	1.62	7.82	+	6.64	16
39	Two Mile Hill Exc.	4.24	4.15	1.05	2.75	12.19	+	9.64	22
13	West Pasture Exc.	1.28	1.58	1.55	1.30	5.71	-	5.72	21
178	Willwood Exc.	1.18	2.10	.97	1.20	5.45	-	6.16	22
115	Worland Cattle Co. Exc.	S 2.00	S 3.15	1.82	2.60	S 9.57	+	8.39	15
	Mean n = 27	2.55	3.43	1.65	2.35	9.98	(+1.55[1/])	8.43	
	Percent by Season	25.6%	34.3%	16.5%	23.6%	100.0%			
			1982 Total Average is 118.4% of Normal				- 8 +19		

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Hot Springs County									
117	Big Bend Exc.	S 3.10	S 4.70	1.45	3.45	S 12.70	+	10.48	15
76	Cochran Exc.	S 2.60	S 3.10	2.44	E 3.20	SE 11.34	+	10.37	22
231	Egbert Draw BLM 16	S 4.15	S 7.86	4.40	5.25	S 21.66	+	19.76	2
77	Kirby Creek Exc.	S 2.55	S 2.55	2.27	3.65	S 11.02	+	9.92	20
223	Kirby Creek WRA 9	S 3.95	S 3.90	2.55	SE 3.10	SE 13.50	+	10.53	4
258	Lime Ridge BLM 17	S 3.53	S 3.56	2.37	5.33	S 14.79	+	14.28	2
111	Lower Enos Cr. Exc.	2.77	5.48	2.61	S 3.14	S 14.00	+	11.28	15
205a	Murphy Draw BLM 5	S 1.08	S 1.97	1.89	1.11	S 6.05	-	7.16	5
205b	Murphy Draw UW	S .75	S 1.88	1.61	1.02	S 5.26	-	7.22	5
183	No. Butte Thermop. Relic	2.06	S 2.98	1.34	3.59	9.97	-	10.89	11
215	O.B. Reservoir BLM 15	S 2.20	S 4.93	3.27	3.10	S 13.50	+	12.53	5
202a	Prospect Creek BLM 2	S 1.20	S 3.40	1.58	2.25	S 8.43	-	9.63	5
202b	Prospect Creek UW	(Not recorded)							
204a	Grass Ct. BLM4	S 1.85	S 3.07	2.03	1.80	S 8.75	-	9.20	5
204b	Rankin Basin UW S	1.65	3.05	1.96	2.20	8.86	-	9.67	5
204c	Rankin Basin UW L	1.54	3.23	2.17	2.17	9.11	-	10.61	5
233	Rock Creek BLM 18	S 4.00	S 7.80	2.94	E 4.00	SE 18.74	+	16.44	2
182	Round Top Mtn Relic	2.92	3.38	1.82	3.76	11.88	-	11.90	11
75	Sand Gulch Exc.	S 1.90	S 2.35	1.97	2.95	S 9.17	+	9.03	21
214	Twenty One Creek BLM 14	S 2.20	S 4.35	5.41	2.85	S 14.81	+	12.91	5
22	Upper Enos Cr. Exc.	2.42	6.47	2.98	S 4.67	S 16.54	+	15.16	14
213	Wagonhound BLM 13	S 1.60	S 4.55	3.05	1.75	S 10.95	+	9.50	5
201	Waugh Dome BLM 1	S 1.00	S 3.12	1.50	1.70	S 7.32	-	9.55	5
	Mean n = 27	2.32	3.99	2.43	3.00	11.74	(+.46[1])	11.28	
	Percent by Season	19.8%	34.0%	20.7%	25.5%	100.0%			
			1982 Total Average is 104.1% of Normal				- 9		
							+13		

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Fremont County									
52	Alkali Flats	2.10	1.75	1.19	E 2.00	E 7.04	–	8.40	22
157	Bar X	2.45	2.00	1.56	1.90	7.91	+	6.99	13
242	Birdseye Pass	1.09	2.70	3.64	2.57	10.00	+	10.00	1
89	Birdseye Ranch[1/]	1.40	2.14	2.42	2.00	7.96	+	7.85	19
236	Bison Basin	2.43	E 2.75	.29	3.80	9.27	+	9.27	1
10	Boysen Res. Exc.[1/]	.92	2.10	1.30	1.19	5.51	+	5.14	23
85	Bridger Cr. Ranch	4.26	4.04	2.48	2.55	13.33	+	11.41	20
241	Buffalo Creek	1.38	1.95	.76	2.65	6.74	+	6.74	1
88	Comet Mine	2.77	4.49	3.18	2.83	13.27	+	11.83	20
243	Cottonwood Pass Exc.	2.02	4.24	1.70	3.20	11.16	+	11.16	1
247	Deer Creek AMP	–	INSTALL	.60	2.10	–	–	–	–
60	Dishpan Butte Exc. #1	2.55	2.54	1.50	3.19	9.78	–	11.16	21
61	Dishpan Butte Exc. #2	1.77	3.90	.45	2.80	8.92	–	9.33	21
229	Divide Study Plot Exc. #3	2.06	3.01	1.25	2.82	9.14	+	8.22	4
86	Dry Creek	.89	2.08	.94	1.78	5.69	–	6.93	22
58	Empty Cartridge Exc.	2.00	2.30	.27	3.54	8.11	–	8.22	17
55	Fraser Seed Plot	1.87	2.67	1.27	2.85	8.66	–	8.89	20
67	Frenchie #9 (Madden)	1.56	3.58	1.38	1.84	8.36	–	9.06	21
48	Fuller Seed Plot	1.55	2.72	.75	2.65	7.67	–	8.16	21
46	Gibbs Butte	.98	2.27	S 1.40	S 2.85	7.50	+	6.86	22
6	Granite Mountain Exc.	1.61	3.03	1.15	2.22	8.01	–	8.71	20
239	Greasewood Draw	E 2.10	2.87	1.61	2.28	8.86	+	8.86	1
238	Green Mountain	S 5.00	S 6.68	1.85	5.40	18.93	+	18.93	1
62	Hall Creek Divide Exc.	2.15	3.38	.40	4.23	10.16	–	11.66	21
87	Hoodoo Creek	1.18	1.98	.90	1.40	5.46	–	6.53	22
64	Hudson	1.50	2.80	.75	2.52	7.57	–	9.25	21
68	Johnson	E 1.10	2.56	3.05	1.33	E 8.04	+	7.21	20
5	Lander Ant Exc.	1.99	2.37	.40	4.65	9.41	+	8.56	22
63	Little Popo Agie	2.80	3.84	.85	3.80	11.29	+	11.13	21
56	Logan #1 Exc.	2.00	2.28	1.23	3.70	9.21	+	8.64	21
57	Logan #2 Exc.	2.15	2.65	1.86	3.18	9.84	+	8.42	21
237	Lost Creek Reservoir	E 2.00	E 2.50	.50	1.25	6.25	+	6.25	1
16	Lower Gov't. Draw Exc.	2.07	2.80	.80	2.35	8.02	–	10.12	22

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Fremont County (Continued)									
81	Mack Ranch	2.44	3.19	2.33	2.32	10.28	+	8.96	18
14	McGraw Flat Exc.	2.13	2.95	1.15	3.80	10.03	+	9.59	22
240	McIntosh Meadows	1.32	1.57	1.48	1.52	5.89	+	5.89	1
47	Muskrat Creek	1.16	1.91	1.24	2.73	7.04	–	7.17	20
50	Muskrat #5 Exc.	2.25	1.90	1.36	3.65	9.16	+	8.42	21
235	Picket Lake	S 1.75	S 2.34	.81	1.52	6.42	+	6.42	1
51	Poison Creek	.89	3.27	E 1.90	E 2.40	8.46	+	7.93	20
80	Poison Draw	.98	2.51	1.58	1.56	6.63	–	6.95	22
244	Quien Sabe Ranch	.95	3.73	2.62	1.63	8.93	+	8.93	1
245	Quien Sabe Road Exc.	E .90	2.20	.70	1.96	E 5.76	+	5.76	1
65	Sand Draw (Pan Amer.)	1.60	2.45	.87	2.73	7.65	–	8.75	19
169	Shoshoni Ant Exc. #2	1.69	E 3.00	E .95	2.96	E 8.60	+	8.34	11
170	Shoshoni Ant Exc. #4	1.48	3.12	E .90	E 2.95	E 8.45	+	8.08	11
158	Shoshoni Ant Exc. #7	1.55	2.89	.88	2.92	8.24	–	8.42	12
172	Shoshoni Ant Exc. #8	1.64	2.42	.98	2.83	7.87	–	8.26	11
171	Shoshoni Ant Exc. #9	1.72	3.08	1.03	2.64	8.47	+	8.35	11
173	Shoshoni Ant Exc. #11	1.45	2.10	1.00	3.02	7.57	–	8.14	11
234	Stawberry Creek	S 2.25	S 2.95	E 1.10	1.86	8.16	+	8.16	1
11	Sweetwater Exc.	1.75	2.66	.80	2.70	7.91	–	8.80	22
9	Upper Gov't. Draw Exc.	1.71	3.10	.90	2.50	8.21	–	9.21	23
	Mean n = 52	1.83	2.81	1.30	2.65	8.59	(-.07[1])	8.66	
	Percent by Season	21.3%	32.7%	15.1%	30.9%	100.0%			
	1982 Total Average if 99.2% of Normal[2]						-21 +31		

[2] =Note that eliminating the annual precipitation from the Green Mountain Gauge (18.93") would reduce overall total average for both the 1982 data and the long term average by .20" to 8.39" and 8.46" respectively.

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Natrona County									
143	Arminto Exc.	1.75	4.33	3.30	2.43	11.81	+	8.85	15
141	Donlin Exc.	1.62	3.90	E 3.00	2.33	E 10.85	+	7.51	15
110	EK Exc.=Arminto Exc.								
239	Greasewood Draw*	E 2.10	2.87	1.61	2.28	8.86	+	8.86	1
142	Merino Exc.	2.47	3.61	2.74	.99	9.81	+	9.03	15
108	Mud Springs Exc.	4.12	3.74	1.88	1.77	11.51	+	11.18	15
107	Owl Draw Exc.	3.20	4.08	E 1.60	1.62	10.50	+	9.71	16
144	Poison Spider Exc.	2.47	3.12	2.54	3.02	11.15	+	9.15	15
106	Stinking Creek	2.75	3.73	1.34	2.07	9.89	+	9.35	16
	Mean n = 8	2.56	3.67	2.25	2.06	10.54	(+1.34[1/])	9.20	
	Percent by Season	24.3%	34.8%	21.3%	19.6%	100.0%			
			1982 Total Average is 114.6% of Normal				-0 +8		

*Geographically located Natrona County, gauge established and monitored by Lander BLM.

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Carbon County									
186	Flat Top	3.00	1.30	2.24	3.30	9.84	+	9.32	10
27	Little Robber #5 Exc.	3.00	1.10	2.13	2.70	8.93	-	9.69	20
128	Oppenheimer Exc. #1	2.60	1.80	2.19	2.60	9.19	-	9.85	15
124	Poison Butte Exc. #1	3.80	2.10	1.81	2.70	10.41	-	11.02	15
125	Poison Butte Exc. #2	4.15	2.00	1.59	2.80	10.54	-	11.19	15
139	Powder Rim Past.A Exc. #1*	3.70	1.30	2.30	3.80	11.10	+	9.69	15
136	Powder Rim Past.B Exc. #1*	2.30	1.20	1.63	3.30	8.43	-	8.86	15
137	Powder Rim Past.B Exc. #2*	3.10	1.10	2.24	3.70	10.14	-	10.54	15
130	Powder Rim Past.C Exc. #1	2.80	1.20	1.36	2.40	7.76	-	8.60	15
131	Powder Rim Past.D Exc. #1*	2.25	1.10	1.67	2.90	7.92	-	7.94	15
26	Red Wash Exc. #1	2.70	1.30	1.10	2.70	7.80	-	7.96	21
28	Red Wash Exc. #2*	E 2.80	1.10	2.19	2.30	E 8.39	+	7.18	21
25	Red Wash Exc. #3	2.40	1.10	1.25	2.80	7.55	-	7.99	21
	Mean n = 13	2.97	1.36	1.82	2.93	9.08	(-.14[1/])	9.22	
	Percent by Season	32.7%	15.0%	20.0%	32.3%	100.0%			
			1982 Total Average is 98.5% of Normal				-10		
							+ 3		

*Geographically in Sweetwater County but physiographically grouped in Carbon County.

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Sweetwater County									
157	Bar X	2.45	2.00	1.56	1.90	7.91	+	6.99	13
217	Big Hollow Bench Exc.	3.35	1.45	2.25	E 3.20	10.25	+	8.72	5
20	Black Mountain Exc.	3.42	1.18	2.35	3.12	10.07	+	7.66	20
30	Boars Tusk Exc.	3.74	1.99	3.75	2.56	12.04	+	8.06	16
248	Buckskin Crossing	4.10	2.20	1.41	3.75	11.46	+	11.46	1
241	Buffalo Creek	1.38	1.95	.76	2.65	6.74	+	6.74	1
49	Canyon Creek	2.40	1.86	.77	2.12	7.15	-	8.46	21
59	Carter Divide Exc.	1.76	3.00	1.30	2.60	8.66	+	8.33	21
18	Cedar Mountain Exc.	3.18	2.04	3.55	2.78	11.55	+	8.40	20
102	Chandler-Simpson Well	E 2.40	E 1.20	2.10	2.54	8.24	+	7.68	12
197	Costello Creek	4.75	1.99	1.25	3.28	11.27	+	10.74	11
103	Daley Hay Corral	2.50	1.66	1.70	2.54	8.40	+	7.35	16
249	Erramouspe Ranch	1.92	1.86	2.27	3.01	9.06	+	9.06	1
2	Farson Exc.	1.98	1.55	1.25	2.97	7.75	+	6.69	17
104	J.O. Headquarters	3.19	1.47	3.10	3.24	11.00	+	8.20	17
105	Len Hay Corral	E 3.75	1.51	2.70	3.07	11.03	+	7.24	16
250	Little Colo. Well #5	2.25	1.40	1.94	5.07	10.66	+	10.66	1
251	McCann Ranch	2.14	1.90	1.10	1.70	6.84	+	6.84	1
218	North Rim Exc.	5.55	2.53	3.90	3.60	15.58	+	10.21	5
252	Palmer Draw	S 3.25	S 2.45	1.32	1.93	8.95	+	8.95	1
195	Parting of the Ways Exc.	2.38	2.05	1.50	1.70	7.63	+	7.62	5
19	Radio Tower Exc.	2.72	1.20	3.10	2.98	10.00	+	7.69	22
196	Red Creek Ranch	5.25	2.10	1.15	5.07	13.57	+	12.76	11
246	Sage Creek Exc.	-	INSTALL	(2.65)	(3.20)	-	-	-	-
253	Simpson Gulch	2.37	.85	1.91	2.90	8.03	+	8.03	1
101	Ten Mile Ridge	E 2.25	1.19	1.80	1.85	E 7.09	+	6.03	14
254	Tri Territory	1.58	1.95	2.92	1.30	7.75	+	7.75	1
255	White Acorn Ranch	S 2.20	S 3.30	2.31	3.19	11.00	+	11.00	1
	Mean n = 27	2.90	1.84	2.04	2.84	9.62	(+1.13[1/])	8.49	
	Percent by Season	30.2%	19.1%	21.2%	29.5%	100.0%			
			1982 Total Average is 113.3% of Normal				- 2		
							+25		

TABLE I. (Continued)

Rain Gauge No.	Range Gauge Name	Winter April 15 1982	Spring July 1 1982	Summer Sept. 1 1982	Fall Oct. 15 1982	Total 1982	Diff. From Long Term	Long Term Average	No. of Years
Sublette County									
187	Mesa Antelope Exc.	3.30	2.40	2.61	4.17	12.48	+	8.15	8
190	North Alkali	E 2.75	2.20	1.81	3.75	E 10.51	+	6.47	8
188	North Mesa	S 1.00	S 1.02	.90	2.49	5.41	–	7.40	5
189	Sand Draw Pasture	2.29	E 2.10	E 1.90	3.27	E 9.56	+	6.08	8
	Mean n = 4	2.34	1.93	1.80	3.42	9.49	(+2.47[1/])	7.02	
	Percent by Season	24.7%	20.3%	19.0%	36.0%	100.0%			
			1982 Total Average is 135.2% of Normal				–1 +3		
Uinta County									
31	Cumberland #1 Exc.	S 4.19	S .84	S 2.20	S 3.24	10.47	+	7.96	17
34	Cumberland #4 Exc.	S 4.14	S .79	S 2.26	S 2.66	9.85	+	8.19	17
	Mean n = 2	4.16	.82	2.23	2.95	10.16	(+2.08[1/])	8.08	
	Percent by Season	40.9%	8.1%	22.0%	29.0%	100.0%			
			1982 Total Average is 125.7% of Normal				–0 +2		
Lincoln County									
198	Boulder Ridge Exc. BQ#1	S 5.84	S 1.35	S 3.89	S 3.89	14.97	+	10.84	6
32	Cumberland #2 Exc.	S 6.04	S 1.54	S 3.23	S 3.23	14.04	+	9.46	18
33	Cumberland #3 Exc.	S 8.83	S 1.82	S 5.21	S 5.35	21.21	+	11.44	18
35	Elk Mountain Pit	S 5.53	S 1.29	S 3.35	S 2.70	12.87	+	9.01	17
230	Huff Creek Exc.	S 5.79	S 1.72	S 4.53	S 3.58	15.62	+	14.03	4
200	Mahogany Exc. BQ#3	S 4.54	S 1.98	S 5.86	S 2.64	15.02	+	11.10	6
216	Rock Cr. Ridge Exc. BQ#2	S 3.93	S 1.69	S 5.69	S 2.56	13.87	+	9.71	5
	Mean n = 7	5.78	1.63	4.54	3.42	15.37	(+4.57[1/])	10.80	
	Percent by Season	37.6%	10.6%	29.5%	22.3%	100.0%			
			1982 Total Average is 142.3% of Normal				–0 +7		

TABLE II. Precipitation data in inches from selected U.S. Weather Service Stations for the period October 16, 1981 through October 15, 1982[1/]

Section Name	Winter 10/16/81- 4/15/82	Spring 4/16/82 6/31/82	Summer 7/1/82 8/31/82	Fall 9/1/82 10/15/82	Total[2/] 1982	Diff. From Long Term	Stand. Normal or Mean	No. of Years
Big Horn Drainage								
Basin	1.62	2.06	1.13	1.32	6.13	-	6.47^{s}	74
Black Mountain	4.84	5.20	1.92	4.88	16.84	+	13.50^{m}	20
Buffalo Bill Dam	2.53	5.14	2.82	2.93	13.42	+	11.74^{s}	74
Cody	1.68	5.40	3.66	2.94	13.68	+	9.69^{s}	71
Cody 12SE	1.39	3.91	2.93	3.00	11.23	-	11.45^{m}	31
Cody 21SW	3.93	5.74	2.51	3.76	15.94	+	13.44^{m}	13
Deaver	.57	2.70	1.72	.13	5.12	-	5.57^{s}	63
Emblem	2.52	1.98	1.69	1.17	7.36	+	7.35^{m}	34
Grass Creek	1.78	3.13	1.88	4.25	11.04	+	10.62^{m}	34
Greybull	3.20	2.23	.83	1.41	7.67	+	7.20^{m}	32
Heart Mountain	1.85	3.17	1.96	2.03	9.01	+	8.12^{m}	37
Lovell	.75	3.09	1.97	.86	6.67	-	6.95^{s}	69
Powell Field Station	.76	2.73	E 1.84	1.29	6.62	+	6.10^{s}	72
Rairdon 2WSW	1.86	2.06	1.19	1.22	6.33	-	6.43^{m}	32
Shell	3.29	5.31	1.31	3.12	13.03	+	10.14^{m}	25
Sunshine 2ENE	2.62	5.34	4.34	5.11	17.41	+	14.97^{m}	20
Tensleep 4NE	3.95	5.00	1.43	3.70	14.08	+	13.08^{m}	19
Tensleep 16SSE	5.06	4.86	2.61	4.39	16.92	+	12.85^{m}	27
Thermopolis 2	2.88	4.20	2.15	5.79	15.02	+	11.40^{s}	17
Thermopolis 25WNW	2.61	3.66	2.90	E 5.50	14.67	+	12.23^{m}	28
Worland	1.90	1.77	1.26	1.94	6.87	-	7.39^{s}	68
Worland FAA AP	1.79	2.68	1.68	2.01	8.16	+	7.44^{m}	23
Mean n = 22	2.43	3.70	2.08	2.85	11.06	(+1.33)	9.73	
Percent by Season	22.0%	33.4%	18.8%	25.8%	100.0%			
		1982 Total Average is 113.7% of Normal				- 6		
						+16		

m = mean annual precipitation

s = standard normal precipitation with some annual adjustment for recent years

E = estimate processing data calculated by H.G. Fisser from nearby U.S. Weather Service and UW-BLM gauges.

TABLE II. (Continued)

Section Name	Winter 10/16/81- 4/15/82	Spring 4/16/82 6/31/82	Summer 7/1/82 8/31/82	Fall 9/1/82 10/15/82	Total 1982	Diff. From Long Term	Stand. Normal or Mean	No. of Years
Wind River and Upper Platte Drainage								
Northern								
Boysen	1.98	2.88	2.36	3.11	10.33	+	9.29^m	37
Burris	.72	2.58	3.24	4.05	10.59	+	8.98^m	19
Diversion Dam	.90	2.57	1.93	5.32	10.72	+	9.72^s	61
Dubois	1.61	2.45	3.01	3.76	10.83	+	8.64^m	31
Fort Washakie 1SE	E 1.82	E 2.75	E 1.70	E 4.65	E 10.92	–	11.72^m	31
Gas Hills 4E	2.49	2.05	1.28	1.24	7.06	–	9.73^m	21
Lost Cabin	1.40	3.29	2.53	2.65	E 9.87	+	8.30^m	22
Pavillion	.85	3.04	2.26	3.78	9.93	+	8.84^s	63
Riverton	1.25	2.42	.37	3.42	7.46	–	8.54^s	62
Riverton*								
Shoshoni	1.02	2.10	.89	2.05	E 6.06	–	6.70^m	36
Mean n = 10	1.41	2.61	1.96	3.40	9.38	(+.33)	9.05	
Percent by Season	15.1%	27.8%	20.9%	36.2%	100.0%			
		1982 Total Average is 103.6% of Normal				–4 +6		
Southern								
Atlantic City Ore Mine	E 4.86	E 4.95	E 3.70	E 6.40	E 19.91	+	15.81^m	19
Jeffrey City	E 1.89	3.37	1.28	3.64	E 10.18	+	10.14^m	18
Lander WSO AP	2.43	3.02	1.78	4.37	11.60	–	13.82^s	90
Leo 6 SW	3.58	3.48	1.25	2.76	11.07	+	10.47^m	31
Muddy Gap	E 1.94	2.76	.76	5.08	E 10.54	+	9.92^m	34
Oregon Trail Crossing*								
Sand Draw								
South Pass City 1/	E 5.00	E 4.50	E 3.50	E 5.00			13.73	72
Mean n = 5	2.94	E 3.52	E 1.75	E 4.45	12.66	(+.34)	12.32	
Percent by Season	23.2%	27.8%	13.8%	35.2%	100.0%			
		1982 Total Average is 102.8% of Normal				–1 +4		
Summation all Wind River								
Mean n = 15	1.92	2.91	1.89	3.75	10.47	(+.33)	10.27	
Percent by Season	18.3%	27.8%	18.1%	35.8%	100.0%			
		1982 Total Average is 103.2% of Normal				– 5 +10		

*=recording gauge

1/ Estimates by H.G. Fisser, not used in computation of seasonal or long term means

TABLE II. (Continued)

Section Name	Winter 10/16/81– 4/15/82	Spring 4/16/82 6/31/82	Summer 7/1/82 8/31/82	Fall 9/1/82 10/15/82	Total 1982	Diff. From Long Term	Stand. Normal or Mean	No. of Years
Platte Drainage - Central and SE Wyoming								
Alcova 17NW	4.17	E 3.51	2.44	4.61	E 14.73	+	11.43^m	27
Antelope Springs	E 2.26	4.35	2.09	E 4.20	E 12.90	+	10.52^m	16
Bates Creek 2	3.81	5.66	1.82	3.14	14.43	+	12.58^m	14
Casper 2E	E 3.80	E 6.60	E 2.90	E 4.20	E 17.50	+	13.44^s	62
Casper WSO SP	3.76	6.68	2.80	4.00	17.24	+	11.36^s	44
Midwest 1S	4.61	E 5.02	3.25	4.85	E 17.73	+	14.32^m	31
Pathfinder Dam	E 2.31	E 3.56	1.52	2.77	E 10.16	+	9.52^s	75
Powder River 1E*								
Powder River 2SW	E 3.28	6.96	3.26	E 3.90	E 17.40	+	12.71^m	19
Rawlins FAA AP	4.45	1.74	1.54	2.58	10.31	+	9.02^m	35
Saratoga	2.33	2.75	3.16	2.11	10.35	+	9.20^m	31
Seminoe Dam	4.29	5.03	1.68	3.07	14.07	+	12.41^s	43
Shirley Basin Station	E 1.61	E 4.50	2.12	2.93	E 11.16	+	8.28^m	5
Mean n = 12	3.39	4.70	2.38	3.53	14.00	(+2.77)	11.23	
Percent by Season	24.2%	33.6%	17.0%	25.2%	100.0%			
		1982 Total Average is 124.7% of Normal				– 0 +12		
Green River Drainage								
Baggs	5.33	2.68	2.74	3.69	E 14.44	–	14.47^m	3
Big Piney	E 5.65	E 3.25	3.25	E 3.37	E 15.52	+	8.76^s	44
Bitter Creek 1E	E 2.00	2.41	E 2.27	1.16	E 7.84	+	7.20^m	20
Church Buttes Gas	E 2.50	.06	.91	1.24	E 4.71	–	8.58^m	27
Creston*								
Evanston 1E	5.24	1.88	2.89	E 4.46	E 14.47	+	11.00^s	81
Farson	3.44	1.15	3.90	3.19	11.68	+	7.30^m	31
Fontenelle Dam	2.39	.79	2.63	5.36	11.17	+	6.90^m	20
Green River	3.68	.54	1.18	2.47	7.87	–	8.53^s	75
Kemmerer 4SW	7.49	1.23	3.27	4.96	16.95	+	9.68^s	48
Labarge 4WNW	E 5.04	E 2.35	E 2.95	E 4.25	E 14.59	+	8.85^m	20
Merna	11.54	1.81	4.05	4.26	21.66	+	14.57^m	18
Mountain View	1.99	.78	1.21	4.00	7.98	–	8.12^m	16
Mud Springs*								

TABLE II. (Continued)

Section Name	Winter 10/16/81- 4/15/82	Spring 4/16/82 6/31/82	Summer 7/1/82 8/31/82	Fall 9/1/82 10/15/82	Total 1982	Diff. From Long Term	Stand. Normal or Mean	No. of Years
Green River Drainage (Continued)								
Pinedale	5.79	3.11	3.63	3.69	16.22	+	11.32^{s}	58
Rock Springs FAA AP	E 4.80	E 1.15	E 1.60	E 2.25	E 9.80	+	8.81^{s}	53
Sage 4NNW	E 4.25	1.61	3.25	4.16	E 13.27	+	10.22^{s}	52
Wamsutter 1N	2.16	1.02	3.93	2.47	9.58	+	6.25^{m}	33
Mean n = 16	4.46	1.61	2.73	3.44	12.24	(+2.83)	9.41	
Percent by Season	36.4%	13.2%	22.3%	28.1%	100.0%			
		1982 Total Average is 130.1% of Normal				- 4 +12		
Less Merna								
Mean n = 15	3.99	1.61	2.64	3.38	11.62	(+2.55)	9.07	
Percent by Season								
		1982 Total Average is 128.1% of Normal				- 4 +11		

[1] National Climatic Center, 1981 & 1982. Climatological Data Annual Summary, Wyoming. Environmental Data Service, Nat. Oceanic & Atmos. Admin., Dept. of Commerce, Vols. 90 & 91, No. 1-13.

[2] Computed for the period October 16, 1981, to October 15, 1982.

TABLE II. Supplement A. Compilation of longterm precipitation records. Initial data base through 1975 from W.R.R.I. computer output (now with Agric. Mech. Div., Univ. Wyo.). Data for years 1976 through 1981 obtained from U.S.D.I.-N.O.A.A. Weather Service Annual Report. Estimates for missing data compiled by H.G. Fisser, Div. Range Manage., Univ. Wyo. based on precipitation values at nearby weather service and Univ. Wyo. rain gauges.

Station Name	Mean through 1975	1976	1977	1978	1979	1980	1981	Mean	No. Yrs. Record
Big Horn Drainage									
Black Mtn.	13 yr mean = 12.95	E17.44	13.82	18.51	11.56	E10.12	13.41	13.33	19
Cody 12 SE	24 yr mean = 11.71	12.48	7.38	E14.50	E 7.49	E13.58	E 7.48	11.46	30
Emblem	27 yr mean = 7.27	7.12	6.11	8.98	E 6.07	10.20	7.84	7.35	33
Grass Creek	27 yr mean = 10.50	E 9.00	7.12	15.17	10.43	12.62	12.27	10.61	33
Greybull	25 yr mean = 6.89	11.15	E 7.00	9.08	6.72	9.20	7.37	7.19	31
Heart Mtn.	30 yr mean = 7.93	9.34	6.55	E10.30	6.86	E11.73	9.01	8.10	36
Rairdon 2WSW	25 yr mean = 6.13	7.69	6.10	9.86	6.98	8.14	7.29	6.43	31
Shell 4ENE	18 yr mean = 9.84	E12.00	E10.00	E15.00	E 8.00	E 9.00	E 9.40	10.02	24
Sunshine 2ENE	13 yr mean = 14.46	E17.06	11.50	17.14	E11.88	E17.74	18.69	14.84	19
Tensleep 4NE	12 yr mean = 13.24	15.51	12.40	16.06	10.16	E10.84	10.74	13.03	18
Tensleep 16SSE	20 yr mean = 12.85	11.76	10.93	17.83	8.60	10.27	13.66	12.69	26
Thermop 25 WNW	21 yr mean = 11.87	11.77	E 9.35	E15.41	E11.53	E15.16	15.43	12.14	27
Worland FAAAP	16 yr mean = 7.20	9.20	E 4.73	10.81	5.95	8.92	8.30	7.41	22
Wind River Drainage									
Boysen Dam	30 yr mean = 9.28	E10.56	8.70	11.78	6.60	8.37	8.98	9.26	36
Gas Hills 4E	14 yr mean = 9.84	11.53	E12.68	11.77	E 8.11	E 4.83	10.55	9.86	20
Lost Cabin	15 yr mean = 8.27	9.63	E 7.00	E10.00	E 7.29	E 5.92	8.90	8.23	21
Muddy Gap	27 yr mean = 9.60	E10.00	E11.50	E11.50	E13.79	E 8.80	11.78	9.90	33
Sand Draw	29 yr mean = 9.79	(Discontinued?)							
Shoshoni	29 yr mean = 6.67	7.52	5.96	8.03	6.47	5.95	7.94	6.72	35
Platte Drainage									
Bates Creek	7 yr mean = 12.99	15.98	11.02	15.62	E 6.98	8.63	12.51	12.44	13
Rawlins FAAAP	28 yr mean = 8.87	7.09	8.76	9.61	9.23	11.20	11.09	8.98	34
Green River Drainage									
Fontenelle Dam	13 yr mean = 6.83	5.26	5.35	7.63	4.19	9.01	6.70	6.68	19
LaBarge 4WNW	13 yr mean = 8.57	9.36	6.55	6.77	E 5.31	E15.39	7.61	8.55	19
Wamsutter 1N	26 yr mean = 6.12	4.38	E 5.53	7.89	E 4.34	E 8.93	6.71	6.15	32

TABLE II. Supplement B. Assembly of long term precipitation records in inches for compilation of annual mean precipitation. Data from USDI-NOAA Weather Service annual reports. Estimates for missing data compiled by H.G. Fisser, Div. Range Manage., University of Wyoming, based on precipitation values at nearby weather service and Univ. Wyo. rain gauges.

	Dubois (68)[3]		Leo 6SW (29)		Oregon Trail Crossing	Sand Draw	Antelope Springs	Midwest (28)		Mountain View
	Total Annual Ppt.	Standard Normal	Total Annual Ppt.	Standard Normal			Total Annual Ppt.	Total Annual Ppt.	Standard Normal	Total Annual Ppt.
1952[1]	5.95	9.46	8.47	10.82		10.20		11.63	13.51	
1953	9.32		9.63	10.82		9.68		13.96	13.51	
1954	7.05	9.46	8.61	11.62		7.69		9.53	13.51	
1955	6.61	9.46	8.31	11.62		10.88		15.24	13.51	
1956	7.76	9.45	7.62	11.14		7.41		11.97	12.84	
1957	13.25	9.45	11.50	11.14		15.30		16.75	12.84	
1958	9.20	9.45	7.69	11.14		8.52		14.03	12.84	
1959	6.59	9.45	8.79	11.14		6.63		11.54	12.84	
1960	7.54	9.45	8.66	11.14		7.89		10.01	12.84	
1961	8.92	9.45	9.20	11.14		7.91		14.80	12.84	
1962	10.06	9.35	8.97	10.74		9.94		18.29	12.84	
1963	11.14	9.35	8.94	10.74		7.93		10.40	12.84	
1964	6.88	9.35	13.96	10.74		9.77		15.45	12.84	
1965	7.68	9.35	12.30	10.74		9.68		13.02	12.84	
1966	8.45	9.35	9.77	10.74		10.86	INSTALLED	10.72	12.84	INSTALLED
1967	12.65	9.35	13.72	10.74		14.88	11.33	16.18	12.84	10.33
1968	9.50	9.35	9.44	10.74		10.08	9.73	15.07	12.84	9.89
1969	3.87	9.35	8.65	10.74		10.24	6.55	8.50	12.84	8.68
1970	8.50	9.35	10.59	10.74		10.02	9.22	14.16	12.84	7.40
1971	9.62	9.35	11.68	10.74		12.47	10.71	15.12	12.84	8.07
1972	7.40	9.35	14.09	10.74		9.11	13.52	19.75	12.84	9.21
1973	10.15	9.35	15.49	10.74		11.69	12.08	19.29	12.84	9.40
1974	6.78	9.50	11.59	10.80		6.13	10.00	15.40	13.21	3.59
1975	8.88	9.50	11.52	10.80		---	9.55	15.52	13.21	8.37
1976	10.43		8.35	10.80		8.19	12.79	17.03	13.21	7.02
1977	7.05	9.50	11.45	10.80		---	12.22	18.52	13.21	7.84
1978	7.49	9.50	12.54	10.80		Not Listed	14.76	18.73	13.21	9.95
1979	4.94	9.50	10.91	10.80		Not Listed	7.21	11.19	13.21	6.31
1980	12.79		10.94	10.80		Not Listed	7.76	11.35	13.21	9.31
1981	10.47	9.50	10.17	10.80		Not Listed	8.00	12.92	13.21	6.50
1982[2]	10.83		11.07			---	12.90	17.73		7.98
	n = 31		n = 31			n = 24	n = 16	n = 31		n = 16
	mean = 8.64		10.47			9.71	10.52	14.32		8.12

[1] All values are calendar year

[2] Values for 10/16/81 thru 10/15/82

[3] Values in parentheses are number of years of previous record

TABLE III. Seasonal distribution and summary of precipitation (inches) by county, region and drainage areas from U.W., BLM and Weather Service rain gauges from October 16, 1981 through October 15, 1982.

	Recording Dates 1982				No. of	1982 Total Avg.	Diff from Ann.	Long Term Ann.	No. Gauge Above (+) or below (-) Long term Avg.	
UW & BLM Gauges	4/15	7/1	9/1	10/15	Gauges	Ppt	Avg.	Avg.	(+)	(-)
Park County	1.93	3.92	2.73	2.23	19	10.81	(+1.70)	9.11	16	3
Big Horn County	2.23	3.22	1.53	1.74	31	8.72	(+ .44)	8.28	21	10
Washakie County	2.55	3.43	1.65	2.35	27	9.98	(+1.55)	8.43	19	8
Hot Springs County	2.32	3.99	2.43	3.00	22	11.74	(+ .46)	11.28	13	9
Big Horn Basin Avg.[1]	2.28	3.58	2.00	2.28	99	10.14	(+ .99)	9.15	69	30
Percent by Season	22.5%	35.3%	19.7%	22.5%		100.0%				
1982 Total Average is 110.8% of Normal										
Fremont County	1.83	2.81	1.30	2.65	52	8.59	(- .07)	8.66	31	21
Percent by Season	21.3%	32.7%	15.1%	30.9%		100.0%				
1982 Total Average is 99.2% of Normal										
Natrona County	2.56	3.67	2.25	2.06	8	10.54	(+1.34)	9.20	8	0
Percent by Season	24.3%	34.8%	21.3%	19.6%		100.0%				
1982 Total Average is 114.6% of Normal										
Carbon County	2.97	1.36	1.82	2.93	13	9.08	(- .14)	9.22	3	10
Sweetwater County	2.90	1.84	2.04	2.84	27	9.62	(+1.13)	8.49	25	2
South Wyo. Avg.[1]	2.92	1.68	1.97	2.87	40	9.44	(+ .71)	8.73	28	12
Percent by Season	30.9%	17.8%	20.9%	30.4%		100.0%				
1982 Total Average is 108.1% of Normal										
Sublette County	2.34	1.93	1.80	3.42	4	9.49	(+2.47)	7.02	3	1
Uinta County	4.16	.82	2.23	2.95	2	10.16	(+2.08)	8.08	2	0
Lincoln County	5.78	1.63	4.54	3.42	7	15.37	(+4.57)	10.80	7	0
Western Wyo. Avg.[1]	4.47	1.60	3.34	3.35	13	12.76	(+3.54)	9.22	12	1
Percent by Season	35.0%	12.5%	26.2%	26.3%		100.0%				
1982 Total Average is 138.4% of Normal										
All UW-BLM Gauges Combined[1]	2.44	2.91	1.91	2.54	212	9.80	(+ .84)	8.96	148	64
Percent by Season	24.9%	29.7%	19.5%	25.9%		100.0%				
1982 Total Average is 109.4% of Normal										

[1] Weighted by numbers of gauges in each county.

TABLE III. (Continued)

WEATHER SERVICE GAUGES	Recording Dates 1982 4/15	7/1	9/1	10/15	No. of Gauges	1982 Total Avg. Ppt	Diff from Ann. Avg.	Long Term Ann. Avg.	No. Gauge Above (+) or below (-) Long term Avg. (+)	(-)
Big Horn Drainage	2.43	3.70	2.08	2.85	22	11.06	(+1.33)	9.73	16	6
Percent by Season	22.0%	33.4%	18.8%	25.8%		100.0%				
1982 Total Average is 113.7% of Normal										
Wind River Drainage	1.92	2.91	1.89	3.75	15	10.47	(+ .20)	10.27	10	5
Percent by Season	18.3%	27.8%	18.1%	35.8%		100.0%				
1982 Total Average is 102.0% of Normal										
Platte Drainage	3.39	4.70	2.38	3.53	12	14.00	(+2.77)	11.23	12	0
Percent by Season	24.2%	33.6%	17.0%	25.2%		100.0%				
1982 Total Average is 124.7% of Normal										
Green River Drainage	4.46	1.61	2.73	3.44	16	12.24	(+2.83)	9.41	12	4
Percent by Season	36.4%	13.2%	23.3%	28.1%		100.0%				
1982 Total Average is 130.1% of Normal										
All US Weather Service Gauges Combined[1/]	2.99	3.19	2.25	3.33	65	11.76	(+1.71)	10.05	50	15
Percent by Season	25.4%	27.2%	19.1%	28.3%		100.0%				
1982 Total Average is 117.0% of Normal										
SUMMARY ALL RECORDS	2.57	2.98	1.99	2.72	277	10.26	(+1.04)	9.22	198	79
Percent by Season	25.1%	29.0%	19.4%	26.5%		100.0%				
1982 Total Average is 111.3% of Normal										

[1/] Weighted average by numbers of gauges by county, region, or drainage.

TABLE IV. Precipitation data (inches) for all UW - BLM gauges in the Big Horn Basin for the 1982 Season (October 16, 1981 through October 15, 1982).

Rain Gauge No.	Gauge Name & BLM Number	Apr 15 82	Jun 1 82	Jul 1 82	Aug 1 82	Sep 1 82	Oct 15 82	1982 Total	*	Long Term Average	No. Years Record
Park County											
207	Beaver Slide BLM 7	S 4.09	S 1.35	2.50	1.15	1.18	2.78	S 13.05	+	11.87	5
147	Big Sage Exc.	2.15	2.28	3.20	2.12	.72	2.59	13.06	+	8.42	14
261	Big Sand Coulee BLM T	S 1.15	S .97	2.08	2.35	.60	1.50	S 8.65	–	8.69	3
146	Big Sky Exc.	2.05	1.38	3.16	2.12	.59	2.15	11.45	+	8.80	14
100	Buffalo Basin Exc.	1.60	1.92	2.57	1.76	.53	2.92	11.30	+	10.29	16
193	Canyon Creek	3.46	1.66	2.53	.93	.93	2.57	12.08	+	9.31	10
232	Coal Creek BLM T	S 1.60	S 1.27	2.45	1.45	.84	1.85	S 9.46	+	9.24	3
259	Cottonwood Creek BLM T	S 1.25	S 1.40	2.60	1.60	1.75	1.10	S 9.70	+	8.32	3
266	Garland Oil Field BLM T	S .70	S .60	2.40	.90	.13	.70	S 5.43	–	5.86	3
145	Hilltop Springs	S 5.06	S 3.01	3.29	1.94	.55	7.61	S 21.46	+	14.56	14
184	Little Dry Creek UW	1.58	1.46	2.41	2.33	1.05	E 2.00	E10.83	+	8.77	8
260	Little Sand Coulee BLM T	S 1.95	S 1.40	2.70	2.15	1.40	2.20	S 11.80	+	9.83	3
263	Oregon Basin BLM T	S .70	S 1.05	2.65	1.80	1.05	2.05	S 9.30	+	8.82	3
262	Pole Cat Bench BLM T	S .50	S .65	2.60	1.90	.51	.88	S 7.04	+	6.51	3
257	Sh. Fk.Meeteetse Cr. BLMT	S 1.65	S 2.15	E 2.30	1.90	2.20	1.85	SE12.05	–	12.82	3
192	Skyline	3.68	1.82	1.98	1.27	.72	2.53	12.00	+	8.64	9
206	Squaw Teats BLM 6	S 1.65	S 1.16	1.60	2.56	2.31	1.72	S 11.00	+	8.42	5
191	State Line	.61	1.43	1.71	1.44	.60	1.64	7.43	+	6.51	9
264	YU Bench BLM T	S 1.30	S .87	1.97	2.00	.50	1.70	S 8.34	+	7.39	3
	Mean n = 19	1.93	1.46	2.46	1.77	.96	2.23	10.81	(+1.70[1/])	9.11	
	Percent by Season	17.8%	13.5%	22.8%	16.4%	8.9%	20.6%	100.0%			
				1982 Total Average is 118.7% of Normal					– 3		
									+16		

TABLE IV. Continued.

Rain Gauge No.	Gauge Name & BLM Number	Apr 15 82	Jun 1 82	Jul 1 82	Aug 1 82	Sep 1 82	Oct 15 82	1982 Total	*	Long Term Average	No. Years Record
Big Horn County											
176	Basin Flats Exc.	1.45	1.02	.89	.73	.20	1.21	5.50	–	7.03	16
256	Beaver Creek BLM T	S 2.85	S 1.22	1.76	E .85	.76	E 2.50	SE9.94	+	9.82	3
123	Big Flat Exc.	1.19	.95	.72	.85	.38	1.02	5.11	–	6.29	15
219	Blue Ridge WRA 3	S 2.00	S 1.20	1.90	.45	.48	2.02	S 8.05	+	7.69	4
220	Cedar Mountain WRA 4	S 3.35	S 1.70	3.65	.77	.63	2.25	S 12.35	+	10.01	4
208	Dead Indian BLM 8	S 1.36	S .54	1.58	1.39	1.05	1.83	S 7.75	+	6.59	5
212a	Dorsey Cr. BLM 12	S 1.30	S .78	1.45	.90	.55	1.80	S 6.78	–	6.83	5
212b	Dorsey Cr. UW	S .95	S .60	1.10	.90	.35	1.42	S 5.32	–	6.11	5
269	Dry Creek BLM T	S .85	S 1.55	1.75	1.96	.14	1.15	S 7.40	+	7.00	3
211	Elk Creek BLM 11	SE1.30	S .95	.88	.90	.55	1.00	SE5.58	–	5.80	5
194	Emblem Bench BLM T	S .55	S .43	2.35	1.45	.30	1.15	S 6.23	+	5.29	5
24	Halogeton Exc. #1	1.58	.83	1.62	1.29	.22	.68	6.22	+	5.50	23
167	Halogeton Exc. #2	1.45	.93	1.55	1.55	.28	.80	6.56	+	6.09	11
168	Halogeton Exc. #3	1.48	.83	1.54	1.30	.23	.48	5.86	+	5.63	11
12	Horse Creek Exc.	4.08	1.87	2.49	.85	.73	3.80	13.82	+	11.23	23
113	Horse Haven Exc.	1.55	.98	.89	.64	.25	1.20	5.51	–	6.96	16
21	Kane Deer Exc.	4.18	2.42	3.50	.91	1.40	2.00	14.41	+	12.12	18
149	Kane GRI Exc.	3.77	2.32	3.51	.88	1.28	2.22	13.98	+	12.56	15
116	Kane Seed Exc. UW	1.60	1.03	2.41	.80	.48	1.30	7.62	+	7.05	15
271	Kane Seed Exc. BLM T	S 1.40	S .36	1.84	.82	.48	1.10	6.00	–	6.77	3
268	Little Dry Creek BLM T	S .51	S .36	1.75	1.15	.50	.68	S 4.95	–	7.08	3
224	Luman Creek WRA 5	SE5.00	SE2.00	3.50	1.44	.51	3.65	SE16.10	+	13.18	4
148	Medicine Lodge GRI Exc.	5.73	1.70	4.17	.30	.76	3.42	16.08	+	14.33	15
267	North Cowley BLM T	S .90	S .34	2.09	1.25	.54	.68	S 5.80	–	6.50	3
270	North Shell Allot. BLM T	S 1.55	S .95	1.50	.70	.29	1.42	S 6.41	–	7.16	3
175	Potato Ridge Exc. (CELA)	2.43	1.30	2.10	1.15	.45	1.80	9.23	+	8.24	15
225	Potato Ridge Exc. WRA 1	S 1.95	S .90	2.10	1.00	.34	2.01	S 8.30	+	7.70	4
23	Sheep Springs Exc.	5.40	1.96	3.07	.65	1.00	3.30	15.38	+	13.98	22
227	Sheep Springs Exc. WRA 2	S 3.96	S 1.75	2.60	1.02	.58	3.20	S 13.11	+	12.20	4
174	Sheldon Bulch Exc. (ATGA)	2.55	1.35	2.15	1.10	.36	1.84	9.35	+	7.92	15
265	Whistle Creek BLM T	S .80	S .52	1.88	.96	.54	1.05	S 5.75	+	5.58	3
	Mean n = 31	2.23	1.15	2.07	1.00	.53	1.74	8.72	(+ .44[1/])	8.28	
	Percent by Season	25.5%	13.2%	23.7%	11.5%	6.1%	20.0%	100.0%			
				1982 Total Average is 105.3% of Normal					–10		
									+21		

TABLE IV. Continued.

Rain Gauge No.	Gauge Name & Blm Number	Apr 15 82	Jun 1 82	Jul 1 82	Aug 1 82	Sep 1 82	Oct 15 82	1982 Total	*	Long Term Average	No. Years Record
Washakie County											
1	Ant Hill Worland	1.50	1.18	1.10	.85	.37	1.42	6.42	–	6.49	23
150	Big Trails GRI Exc.	6.25	2.25	2.59	1.76	.53	4.32	17.70	+	13.29	15
41	Bud Kimball Exc.	3.85	1.50	2.40	.65	.15	2.80	11.35	+	9.35	21
7	Buffalo Creek Exc.	S 3.25	S 1.50	1.50	1.35	.60	3.48	S 11.68	+	10.37	20
17	Burned Wagon Exc.	1.33	.86	.72	1.09	.60	1.43	6.03	–	6.13	21
179	Chalk Exc.	1.19	1.39	.94	.78	.20	1.35	5.85	–	6.28	22
222	Cornell Gulch WRA 10	S 2.70	S 2.95	2.45	.95	1.35	3.35	S 13.75	+	8.99	4
259	Cottonwood Cr. BLM T	S 1.25	S 1.40	2.60	1.60	1.75	1.10	S 9.70	+	8.32	3
221	Cottonwood Oil Field WRA6	S 1.70	S 1.40	3.35	.76	.31	1.58	S 9.10	+	6.63	4
8	Demer Exc.	S 2.60	S 1.15	2.20	1.20	.60	3.20	S 10.95	+	8.64	23
4	Dutch Nick Flat Exc.	1.41	1.16	1.33	1.20	.45	2.18	7.73	+	7.21	22
199	East Ridge Exc. (See RG 206 Squaw Teats)										
15	15 Mile Study Pas.= RG 179	1.19	1.39	.94	.78	.20	1.35	5.85	–	6.28	22
177	Hawk Exc.	1.44	.87	.70	1.10	.65	1.54	6.30	+	6.16	21
166	Mills Burn Seed	4.78	2.36	2.81	.43	1.43	3.80	15.61	+	12.81	12
185	Rice Burn Exc.	6.00	1.92	3.53	.61	.67	3.40	16.13	+	14.03	9
180	Sand Creek Exc.	1.90	1.05	1.72	.73	1.08	1.78	8.26	+	6.91	16
226	Sand Draw WRA 8	S 3.55	S 1.70	1.95	.98	.72	3.20	S 12.10	+	9.02	4
209	Schuster Draw BLM 9	S 1.70	S 1.15	1.45	.75	.46	2.35	S 7.86	+	7.71	5
36	Smilo Exc.	3.07	1.55	2.00	.74	.73	2.65	10.74	+	9.31	22
210	So.Fk. 15 Mile Cr. BLM10	S 1.95	S 1.18	1.25	1.14	.80	1.75	S 8.07	–	8.36	5
203	Spring Creek Road BLM 3	S 4.75	S 3.80	3.85	2.25	1.05	4.50	S 20.20	+	9.21	5
228	Spring Cr. Oil Field WRA7	S .95	S .92	2.70	.72	.54	1.45	S 7.28	–	9.69	4
181	Tolman Ridge Exc.	1.95	1.10	1.57	.75	.83	1.62	7.82	+	6.64	16
39	Two Mile Hill Exc.	4.24	1.55	2.60	.35	.70	2.75	12.19	+	9.64	22
13	West Pasture Exc.	1.28	.66	.92	1.13	.42	1.30	5.71	–	5.72	21
178	Willwood Exc.	1.18	1.24	.86	.77	.20	1.20	5.45	–	6.16	22
115	Worland Cattle Co. Exc.	S 2.00	S 1.00	2.15	1.10	.72	2.60	S 9.57	+	8.39	15
	Mean n = 27	2.55	1.49	1.94	.98	.67	2.35	9.98	(+1.55[1/])	8.43	
	Percent by Season	25.6%	14.9%	19.4%	9.8%	6.7%	23.6%	100.0%			
	1982 Total Average is 118.4% of Normal								– 8		
									+19		

TABLE IV. Continued.

Rain Gauge No.	Gauge Name & BLM Number	Apr 15 82	Jun 1 82	Jul 1 82	Aug 1 82	Sep 1 82	Oct 15 82	1982 Total	*	Long Term Average	No. Years Record
Hot Springs County											
117	Big Bend Exc.	S 3.10	S 2.25	2.45	1.00	.45	3.45	S 12.70	+	10.48	15
76	Cochran Exc.	S 2.60	S 1.50	1.60	2.00	.44	E 3.20	SE11.34	+	10.37	22
231	Egbert Draw BLM 16	S 4.15	S 3.41	4.45	2.82	1.58	5.25	S 21.66	+	19.76	2
77	Kirby Creek Exc.	S 2.55	S 1.20	1.35	1.95	.32	3.65	S 11.02	+	9.92	20
223	Kirby Creek WRA 9	S 3.95	S 1.85	2.05	2.15	.40	SE3.10	SE13.50	+	10.53	4
258	Lime Ridge BLM 17	S 3.53	S 2.12	1.44	1.02	1.35	5.33	S 14.79	+	14.28	2
111	Lower Enos Cr. Exc.	2.77	2.00	3.48	1.53	1.08	S 3.14	S 14.00	+	11.28	15
205a	Murphy Draw BLM 5	S 1.08	S .60	1.37	1.02	.87	1.11	S 6.05	–	7.16	5
205b	Murphy Draw UW	S .75	S .58	1.30	.86	.75	1.02	S 5.26	–	7.22	5
183	No. Butte Thermop. Relic	2.06	1.85	1.13	.95	.39	3.59	9.97	–	10.89	11
215	O.B. Reservoir BLM 15	S 2.20	S 3.33	1.60	1.02	2.25	3.10	S 13.50	+	12.53	5
202a	Prospect Cr. BLM 2	S 1.20	S 1.25	2.15	.98	.60	2.25	S 8.43	–	9.63	5
202b	Prospect Cr. UW	Not Recorded									
204a	Grass Cr. BLM4 (Rankin)	S 1.85	S 1.05	2.02	1.23	.80	1.80	S 8.75	–	9.27	5
204b	Rankin Basin Exc. UWS	1.65	1.43	1.62	1.20	.76	2.20	8.86	–	9.67	5
204c	Rankin Basin Exc. UWL	1.54	1.48	1.75	1.25	.92	2.17	9.11	–	10.61	5
233	Rock Creek BLM 18	S 4.00	S 5.00	S 2.80	S 1.36	1.58	E 4.00	SE18.74	+	16.44	2
182	Round Top Mountain Relic	2.92	2.13	1.25	1.22	.60	3.76	11.88	–	11.90	11
75	Sand Gulch Exc.	S 1.90	S 1.10	1.25	1.65	.32	2.95	S 9.17	+	9.03	21
214	21 Creek BLM 14	S 2.20	S 2.15	2.20	2.35	3.06	2.85	S 14.81	+	12.91	5
22	Upper Enos Cr. Exc.	2.42	2.65	3.82	1.38	1.60	S 4.67	S 16.54	+	15.16	14
213	Wagonhound BLM 13	S 1.60	S 1.70	2.85	1.90	1.15	1.75	S 10.95	+	9.50	5
201	Waugh Dome BLM 1	S 1.00	S 1.12	2.00	1.10	.40	1.70	S 7.32	–	9.55	5
	Mean n = 22	2.32	1.90	2.09	1.45	.98	3.00	11.74	(+ .46[1/])	11.28	
	Percent by Season	19.8%	16.2%	17.8%	12.4%	8.3%	25.5%	100.0%			
				1982 Total Average is 104.1% of Normal					– 9		
									+13		

TABLE V. Distribution of 1982 Precipitation (inches) for Three Vegetation Types at the Big Horn Basin Perimeter Gauges.

UW Rain Gauge No.	Vegetation Type	10/16-4/15	4/16-5/31	6/1-6/30	7/1-7/31	8/1-8/31	9/1-10/15	1982 Total	Long Term Average
	Juniper Woodland Rain Gauges								
149	Kane GRI Exc.	3.77	2.32	3.51	.88	1.28	2.22	13.98	12.56
21	Kane Deer Exc.	4.18	2.42	3.50	.91	1.40	2.00	14.41	12.12
166	Mills Burn	4.78	2.36	2.81	.43	1.43	3.80	15.61	12.81
22	Upper Enos Cr. Exc.	2.42	2.65	3.82	1.38	1.60	S 4.67	S16.54	15.16
184	Little Dry Cr.	1.58	1.46	2.41	2.33	1.05	E 2.00	E10.83	8.77
148	Medicine Lodge GRI Exc.	5.73	1.70	4.17	.30	.76	3.42	16.08	14.33
185	Rice Burn Exc.	6.00	1.92	3.53	.61	.67	3.40	16.13	14.03
150	Big Trails GRI Exc.	6.25	2.25	2.59	1.76	.53	4.32	17.70	13.29
	mean, n = 8	4.34	2.13	3.29	1.08	1.09	3.23	15.16	12.88
	Standard Deviation	1.70	.40	.62	.70	.40	1.05	2.11	1.94
	Percent by Season	28.6%	14.1%	21.7%	7.1%	7.2%	21.3%	100.0%	
	Percent of Normal							117.7%	
	Sagebrush-Grasslands Rain Gauges								
7	Buffalo Creek Exc.	S 3.25	S 1.50	1.50	1.35	.60	3.48	S 11.68	10.37
148	Big Sky Exc.	2.05	1.38	3.16	2.12	.59	2.15	11.45	8.80
76	Cochran Exc.	S 2.60	S 1.50	1.60	2.00	.44	E 3.20	SE11.34	10.37
100	Buffalo Basin Exc.	1.60	1.92	2.57	1.76	.53	2.92	11.30	10.29
111	Lower Enos Cr. Exc.	2.77	2.00	3.48	1.53	1.08	S 3.14	S 14.00	11.28
12	Horse Cr. Exc.	4.08	1.87	2.49	.85	.73	3.80	13.82	11.23
204b	Rankin Basin Exc. (Grass Cr.)	S 1.85	S 1.05	2.02	1.23	.80	1.80	S 8.75	9.27
23	Sheep Springs Exc.	5.40	1.96	3.07	.65	1.00	3.30	15.38	13.98
41	Bud Kimball Exc.	3.85	1.50	2.40	.65	.15	2.80	11.35	9.35
183	North Butte Relic	2.06	1.85	1.13	.95	.39	3.59	9.97	10.89
	mean, n = 15	2.95	1.65	2.34	1.31	.63	3.02	11.90	10.58
	Standard Deviation	1.20	.31	.77	.54	.28	.63	1.97	1.46
	Percent by Season	24.8%	13.9%	19.6%	11.0%	5.3%	25.4%	100.0%	
	Percent of Normal							112.5%	
	Desert Shrublands Rain Gauges								
113	Horse Haven Exc.	1.55	.98	.89	.64	.25	1.20	5.51	6.96
116	Kane Seed Exc.	S 1.40	S .36	1.84	.82	.48	1.10	6.00	6.77
24	Halogeton Exc. #1	1.58	.83	1.62	1.29	.22	.68	6.22	5.50
167	Halogeton Exc. #2	1.45	.93	1.55	1.55	.28	.80	6.56	6.09
168	Halogeton Exc. #3	1.48	.83	1.54	1.30	.23	.48	5.86	5.63
175	Potato Ridge Exc.	2.43	1.30	2.10	1.15	.45	1.80	9.23	8.24
174	Sheldon Gulch Exc.	2.55	1.35	2.15	1.10	.36	1.84	9.35	7.92
17	Burned Wagon	1.33	.86	.72	1.09	.60	1.43	6.03	6.13
13	West Pasture	1.28	.66	.92	1.13	.42	1.30	5.71	5.72
178	Willwood	1.18	1.24	.86	.77	.20	1.20	5.45	6.16
	mean, n = 10	1.62	.94	1.42	1.08	.35	1.18	6.59	6.51
	Standard Deviation	.47	.30	.54	.27	.13	.44	1.46	.95
	Percent by Season	24.6%	14.3%	21.5%	16.4%	5.3%	17.9%	100.0%	
	Percent of Normal							101.2%	
	All Vegetation Types								
	mean, n = 28	2.88	1.53	2.28	1.16	.66	2.42	10.93	9.78
	Standard Deviation	1.59	.59	.99	.51	.40	1.17	3.97	3.00
	Percent by Season	26.4%	14.0%	20.9%	10.6%	6.0%	22.1%	100.0%	
	Percent of Normal							111.8%	

TABLE VI. County Locations and 1982 Seasonal Precipitation Data (inches) From Weather Service Gauges in the Big Horn Basin

	10/16/81-4/15/82	4/16/82-6/30/82	7/1/82-8/31/82	9/1/82 10/15/82	1982 Total	Diff. from Long Term	Long Term Averages	Years of Record
Park County								
Basin	1.62	2.06	1.13	1.32	6.13	-	6.47	74
Buffalo Bill Dam	2.53	5.14	2.82	2.93	13.42	+	11.74	74
Cody	1.68	5.40	3.36	2.94	13.68	+	9.69	71
Cody 12 SE	1.39	3.91	2.93	3.00	11.23	-	11.45	31
Cody 21 SW	3.93	5.74	2.51	3.76	15.94	+	13.44	13
Heart Mountain	1.85	3.17	1.96	2.03	9.01	+	8.12	37
Meeteetse *								
Powell	.76	2.73	E 1.84	1.29	6.62	+	6.10	72
Sunshine 2 ENE	2.62	5.34	4.34	5.11	17.41	+	14.97	20
mean, n = 8	2.05	4.18	2.65	2.80	11.68	(+1.43)	10.25	
% by Season	17.5%	35.8%	22.7%	24.0%	100.0%			
% of Normal					114.0%			
Big Horn County								
Deaver	.57	2.70	1.72	.13	5.12	-	5.57	63
Emblem	2.52	1.98	1.69	1.17	7.36	+	7.35	34
Greybull	3.20	2.23	.83	1.41	7.67	+	7.20	32
Lovell	.75	3.09	1.97	.86	6.67	-	6.95	69
Rairdon	1.86	2.06	1.19	1.22	6.33	-	6.43	32
Shell 4ENE	3.29	5.31	1.31	3.12	13.03	+	10.14	25
mean, n = 6	2.03	2.90	1.45	1.32	7.70	(+ .42)	7.27	
% by Season	26.4%	37.7%	18.8%	17.1%	100.0%			
% of Normal					105.9%			
Washakie County								
Tensleep 4 NE	3.95	5.00	1.43	3.70	14.08	+	13.08	19
Tensleep 16 SSE	5.06	4.86	2.61	4.39	16.92	+	12.85	27
Worland	1.90	1.77	1.26	1.94	6.87	-	7.39	68
Worland FAAAP	1.79	2.68	1.68	2.01	8.16	+	7.44	23
mean, n = 4	3.18	3.58	1.74	3.01	11.51	(+1.32)	10.19	
% by Season	27.6%	31.1%	15.1%	26.2%	100.0%			
% of Normal					113.0%			
Hot Springs County								
Anchor Dam *								
Black Mountain	4.84	5.20	1.92	4.88	16.84	+	13.50	20
Grass Creek	1.78	3.13	1.88	4.25	11.04	+	10.62	34
Thermopolis *								
Thermopolis 2	2.88	4.20	2.15	5.79	15.02	+	11.40	17
Thermopolis 25 WNW	2.61	3.36	2.90	5.50	14.67	+	12.23	28
mean, n = 4	3.03	4.05	2.21	5.10	14.39	(+2.46)	11.94	
% by Season	21.1%	28.1%	15.4%	35.4%	100.0%			
% of Normal					120.5%			
All Big Horn Basin US Weather Stations								
mean, n = 22	2.43	3.70	2.08	2.85	11.06	(+1.33)	9.73	
% by Season	22.0%	33.4%	18.8%	25.8%	100.0%			
% of Normal					113.7%			

*=Recording gauge

( )=Differences of average annual precipitation for all gauges in 1982 from long term average.

TABLE VII. Compilation of 1982 Precipitation (inches) Weighted by Numbers of Gauges, by County and Region for UW-BLM Gauges, Weather Service Stations, and All Combined.

	10/16/81-4/15/82	4/16/82-6/30/82	7/1/82-8/31/82	9/1/82 10/15/82	1982 Total	Diff. from Long Term	Long Term Averages
SECTION A. BIGHORN DRAINAGE-INCLUDES PARK, BIGHORN, WASHAKIE & HOT SPRINGS COUNTIES							
Park County							
UW-BLM Gauges							
mean, n = 19	1.93	3.92	2.73	2.23	10.81	(+1.70)	9.11
% by Season	17.8%	36.3%	25.3%	20.6%	100.0%		
% of Normal					118.7%		
US Stations							
mean, n = 8	2.05	4.18	2.65	2.80	11.68	(+1.43)	10.25
% by Season	17.5%	35.8%	22.7%	24.0%	100.0%		
% of Normal					115.1%		
All Park County Combined[1]							
mean, n = 27	1.96	4.00	2.71	2.40	11.07	(+1.62)	9.45
% by Season	17.7%	36.1%	24.5%	21.7%	100.0%		
% of Normal					117.1%		
Big Horn County							
UW-BLM Gauges							
mean, n = 32	2.23	3.22	1.53	1.74	8.72	(+ .44)	8.28
% by Season	25.6%	37.0%	17.5%	19.9%	100.0%		
% of Normal					105.3%		
US Stations							
mean, n = 6	2.03	2.90	1.45	1.32	7.70	(+ .42)	7.27
% by Season	26.4%	37.7%	18.8%	17.1%	100.0%		
% of Normal					105.9%		
All Big Horn County Combined							
mean, n = 38	2.20	3.17	1.52	1.67	8.56	(+ .44)	8.12
% by Season	25.7%	37.0%	17.8%	19.5%	100.0%		
% of Normal					105.4%		
Washakie County							
UW-BLM Gauges							
mean, n = 27	2.55	3.43	1.65	2.35	9.98	(+1.55)	8.43
% by Season	25.6%	34.4%	16.5%	23.5%	100.0%		
% of Normal					118.4%		
US Stations							
mean, n = 4	3.18	3.58	1.74	3.01	11.51	(+1.32)	10.19
% by Season	27.6%	31.1%	15.1%	26.2%	100.0%		
% of Normal					113.0%		
All Washakie County Combined							
mean, n = 31	2.63	3.45	1.66	2.44	10.18	(+1.52)	8.66
% by Season	25.8%	33.9%	16.3%	24.0%	100.0%		
% of Normal					117.6%		
Hot Springs County							
UW-BLM Gauges							
mean, n = 21	2.32	3.99	2.43	3.00	11.74	(+ .46)	11.28
% by Season	19.8%	34.0%	20.7%	25.5%	100.0%		
% of Normal					104.1%		
US Stations							
mean, n = 4	3.03	4.05	2.21	5.10	14.39	(+2.46)	11.94
% by Season	21.1%	28.1%	15.4%	35.4%	100.0%		
% of Normal					120.5%		

TABLE VII. (Continued)

	10/16/81- 4/15/82	4/16/82- 6/30/82	7/1/82- 8/31/82	9/1/82 10/15/82	1982 Total	Diff. from Long Term	Long Term Averages
SECTION A. BIGHORN DRAINAGE-INCLUDES PARK, BIGHORN, WASHAKIE & HOT SPRINGS COUNTIES							
All Hot Springs County Combined							
mean, n = 25	2.43	4.00	2.39	3.34	12.16	(+ .77)	11.39
% by Season	20.0%	32.9%	19.6%	27.5%	100.0%		
% of Normal					106.8%		
Big Horn Basin Four County Summation							
UW-BLM Gauges							
mean, n = 99	2.28	3.57	1.98	2.27	10.10	(+ .98)	9.12
% by Season	22.6%	35.3%	19.6%	22.5%	100.0%		
% of Normal					110.7%		
US Stations - Big Horn Drainage							
mean, n = 22	2.43	3.70	2.08	2.85	11.06	(+1.33)	9.73
% by Season	22.0%	33.4%	18.8%	25.8%	100.0%		
% of Normal					113.7%		
All Big Horn Basin Combined							
mean, n = 121	2.30	3.59	2.00	2.38	10.27	(+1.04)	9.23
% by Season	22.4%	35.0%	19.5%	23.1%	100.0%		
% of Normal					111.3%		
SECTION B. WIND RIVER DRAINAGE FREMONT COUNTY							
UW-BLM Gauges							
mean, n = 52	1.83	2.81	1.30	2.65	8.59	(- .07)	8.66
% by Season	21.3%	32.7%	15.1%	30.9%	100.0%		
% of Normal					99.2%		
US Stations Wind River Drainage							
mean, n = 15	1.92	2.91	1.89	3.75	10.47	(+ .20)	10.27
% by Season	18.3%	27.8%	18.1%	35.8%	100.0%		
% of Normal					101.9%		
All Fremont County Combined							
mean, n = 67	1.85	2.83	1.43	2.90	9.01	(- .01)	9.02
% by Season	20.5%	31.4%	15.9%	32.2%	100.0%		
% of Normal					99.9%		
SECTION C. PLATTE RIVER DRAINAGE-INCLUDES NATRONA & CARBON COUNTIES							
UW-BLM Gauges-Natrona County							
mean, n = 8	2.56	3.67	2.25	2.06	10.54	(+1.34)	9.20
% by Season	24.3%	34.8%	21.3%	19.6%	100.0%		
% of Normal					114.6%		
UW-BLM Gauges-Carbon County							
mean, n = 13	2.97	1.36	1.82	2.93	9.08	(- .14)	9.22
% by Season	32.7%	15.0%	20.0%	32.3%	100.0%		
% of Normal					98.5%		
US Stations-Identified as Platte River Drainage							
mean, n = 12	3.39	4.70	2.38	3.53	14.00	(+2.77)	11.23
% by Season	24.2%	33.6%	17.0%	25.2%	100.0%		
% of Normal					124.7%		
All Platte River, Natrona & Carbon Counties Combined							
mean, n = 33	3.02	3.13	2.13	2.94	11.22	(+1.27)	9.95
% by Season	26.9%	27.9%	19.0%	26.2%	100.0%		
% of Normal					112.8%		

TABLE VII. (Continued)

	10/16/81- 4/15/82	4/16/82- 6/30/82	7/1/82- 8/31/82	9/1/82 10/15/82	1982 Total	Diff. from Long Term	Long Term Averages
SECTION D. GREEN RIVER DRAINAGE-INCLUDES SWEETWATER, SUBLETTE, UINTA & LINCOLN COUNTIES							
UW-BLM Gauges - Sweetwater County							
mean, n = 27	2.90	1.84	2.04	2.84	9.62	(1.13)	8.49
% by Season	30.2%	19.1%	21.2%	29.5%	100.0%		
% of Normal					113.3%		
UW-BLM Gauges - Sublette County							
mean, n = 4	2.34	1.93	1.80	3.42	9.49	(2.47)	7.02
% by Season	24.7%	20.3%	19.0%	36.0%	100.0%		
% of Normal					135.2%		
UW-BLM Gauges - Unita County							
mean, n = 2	4.16	.82	2.23	2.95	10.16	(2.08)	8.08
% by Season	40.9%	8.1%	22.0%	29.0%	100.0%		
% of Normal					125.7%		
UW-BLM Gauges - Lincoln County							
mean, n = 7	5.78	1.63	4.54	3.42	15.37	(+4.57)	10.80
% by Season	37.6%	10.6%	29.5%	22.3%	100.0%		
% of Normal					142.3%		
US Stations							
mean, n = 16	4.46	1.61	2.73	3.44	12.24	(+2.83)	9.41
% by Season	36.4%	13.2%	22.3%	28.1%	100.0%		
% of Normal					130.1%		
All Green River Drainage, Sweetwater, Sublette, Uinta & Lincoln Counties Combined							
mean, n = 56	3.71	1.72	2.54	3.13	11.10	(+2.18)	8.92
% by Season	33.4%	15.5%	22.9%	28.2%	100.0%		
% of Normal					124.4%		
SECTION E. ENTIRE STATE - ALL GAUGES							
All UW-BLM Gauges							
mean, n = 212	2.44	2.91	1.91	2.54	9.80	(+ .84)	8.96
% by Season	24.9%	29.7%	19.5%	25.9%	100.0%		
% of Normal					109.4%		
All US-Big Horn, Wind River, Platte River & Green River Drainages							
mean, n = 65	2.57	2.98	1.99	2.72	10.26	(+1.04)	9.22
% by Season	25.1%	29.0%	19.4%	26.5%	100.0%		
% of Normal					111.3%		
Total All UW-BLM & US Gaiges Combined							
mean, n = 277	2.47	2.93	1.93	2.58	9.91	(+ .89)	9.02
% by Season	24.9%	29.6%	19.5%	26.0%	100.0%		
% of Normal					109.9%		

SECTION IV

PRODUCTIVITY-PHENOLOGY INTERRELATION STUDY

1982

Introduction

Relationships between plant phenology, productivity and annual weather variations are not well understood. There is a need to determine standing crop variation with seasonal progression of annual herbage production, as it relates to phenological development and weather variations. Such information is essential for determining rangeland herbage production potential from data collected at times other than peak standing crop. Interrelationships of time with phenological stages and the development of standing crop of annual herbage production, which could normally be expected at each major plant growth stage, has been little investigated because of extensive monetary, manpower and time commitments necessary for such comprehensive research attempts.

There is presently existing, information of long-term continuous study of herbage production and/or cover and composition, on some 100 exclosure locations throughout western Wyoming. Soils, precipitation and other ecological-environmental information has also been obtained from many of them. Recent six year intensive studies of phenology and production were conducted on 12 of these locations. Continued studies to address phenology-standing crop dynamics and relationship to range site productive potential can be conveniently integrated into the ongoing program.

Objectives

The objectives of this study are twofold. First, the determination of plant productivity relationships with environmental factors and phenological growth stages. The environmental variables of annual and long-term precipitation, air temperature and soil temperature are studied in conjunction with both plant phenology and productivity. The second objective involves development of a predictive model for analysis of quantitative data which can be used in management decision processes.

Procedures

Procedures that were conducted to measure variables in the model involved four major activities:

a. determining early and late cover and standing crop

b. recording phenology of prime species on existing permanent transect lines,

c. selection and clipping of prime species plant culm and bud units,

d. recording environmental variables.

Standing Crop Procedures

Determination of cover and standing crop followed existing procedures for estimation of total annual growth production. From transects of 20 quadrats, 1' x 1', basal cover of all herbaceous species (grasses, upright and mat-forming forbs, and plains pricklypear) and crown cover of woody half-shrubs and shrubs was obtained. This data included estimation values as low as 0.1% basal cover. Generally, a minimum of ten culms were required to attain a 1.0% cover estimation value for single stemmed grasses and forbs. For bunchgrasses and mat-forming forb species, including plains pricklypear, basal cover value estimates were simple expressions of the estimated proportional area of the quadrat occupied by any species. Guide frames of several different sizes representing different proportional amounts of a quadrat were utilized to assist the accuracy of estimation. Crown cover estimation of shrubs and low-growing half-shrubs were generally estimated to exclude significant dead or unoccupied areas within the crown perimeter.

Determination of standing crop involved clipping all grasses and grass-likes and upright forb species within each of the 1' x 1' (30 x 30 cm) quadrats at ground or crown level. Perennial grass and grass-like species of each transect were placed in individual bags. The annual grass, annual forb, and perennial forb groups were combined in bags identified only by group. Each bag was identified by exclosure name, date, transect location or treatment area and with quadrat number for subsequent correlation with corresponding basal cover estimates. All bags were oven dried at 70°C for at least 24 hours. Weighing was done on a Sartorius top loading balance and values rounded to the nearest 0.01 gram. The need for such a weight unit was derived from the fact that many specimens of clipped plants weighed only as much as two or three hundredths of a gram when dried. To have used a weight limit of 0.1 or 1.0 gram would have resulted in excessive inflation of very small samples. The numerical process of recording weights at hundredths of a gram thus should be recognized in this light and not that the data specifically express a concept of accuracy at that level.

Standing crop of shrubs was determined by using a double sampling weight estimate procedure with a 4' x 5' wire frame gridded to 6" x 6". Weight units were estimated at 20 random sampling plots. Weight units of large shrub species were estimated and all new green growth material, including new twig growth, was clipped or plucked from within a 6" x 6" quadrat section. Three weight units were clipped for each species. Weight units of mat-forming woody species such as Hood's phlox and Hooker sandwort were obtained from common size plant units, often 3"-5" in diameter, from which the annual growth was removed. Weight units of small upright shrubs and half-shrubs such as winterfat and granite gilia were obtained by removal of all annual growth from the entire plant. Each weight unit of plains pricklypear consisted of ten leaf pads, but unlike all other shrub species, the oven dried weight of the ten pads was considered to be ten times greater than the annual growth increment.

For determination of early season standing crop, clipping and estimation of weight units was conducted during late May and early June. For determination of greatest standing crop, herbaceous species clippings were conducted during August. Weight unit estimations were delayed until late September - early October to allow for complete seed maturation of sagebrushes and for natural early shedding of most leaves which had erupted during the previous fall season.

Phenology Transect Procedures

Monitoring phenodynamics of vegetation at each of twelve exclosure study locations was initiated in 1973. At that time phenology stages, phases, and subphases of plants were defined by written descriptive statements and combined numerical scoring values ranging from 0.0 through 17.0. A recent modification initiated in 1979, incorporated the early separation of vegetative from reproductive stages. Scoring values now range from 1 through 8 for vegetative categories and 9 through 18 for reproductive categories of plant growth. A complete description of phenological sampling procedures is presented in Volume I of this report.

For determination of average phenology of each of the four prime species (*Agropyron smithii* and *A. spicatum*; *Artemisia nova* and *A. tridentata*), transects were established and 20 random plants were identified for repetitive observation and expression of phenological development. Death of shrubs required replacement and loss of grass clone areas, especially western wheatgrass, required identification of replacements which were identified by new coordinates along the transect line. A general evaluation of the phenological state of all species was obtained by simple observation over the exclosure area.

Earliest seasonal recording of phenology occurred during late April - early May. During the spring-summer period of rapid growth, phenologic data were recorded at approximately 14 day intervals. During September and later, data were recorded at three to four week intervals and discontinued after October.

Specific activities for monitoring productivity required the determination of average phenology and corresponding numerical value for each of the prime species at an exclosure. The plants on each phenology transect line were observed and ranked according to vegetative and reproductive stage.

Productivity Clipping Procedures

Concurrent with early standing crop estimation, procedures for measuring productivity of the four prime species were initiated. Twenty individual plant units of each prime species were clipped. Clipped plants were selected to best represent the average phenology of a given prime species as indicated from the average phenology values on the transect lines. The specimens to be clipped were selected at locations near the corresponding phenology transect line. Twenty plants were clipped and individually bagged and identified with exclosure, species and date.

Productivity units of the wheatgrasses were individual culms. Selection was based primarily on the phenology average of the permanent transect lines. Productivity units of the sagebrushes were individual twigs of current annual growth and buds. Phenologic development, representative of the adjacent permanent phenology transect, defined the observer selection criteria.

The expression of standing crop at frequent intervals, derived from the productivity weight units integrated with early and late standing crop production provides a characterization of community productivity dynamics. In addition, the interrelation of prime species productivity units with phenologic progress provides a detailed description of phenodynamics and related standing crop values for these species.

Time-variable influence of environmental factors will influence both productivity and phenology. By interpretation of cause-effect responses, the biotic and environmental data will provide information useful for prediction of growth and phenodynamics.

Recording Environmental Variables

Maximum and minimum air temperatures since the previous sampling data were recorded from a max-min thermometer located in a shaded site at each study area. Current temperature was also recorded.

Soil moisture was determined from gravimetric samples at 0-6", 6"-12", and 18"-24". Samples were taken with a king tube and three sets of samples were taken adjacent to each phenology transect line. Soil samples are placed in air tight metal containers and weighed soon after collection with a triple beam balance. Upon return to the laboratory the container caps were removed, for oven drying at 70°C for 48 hours, prior to dry weight determination. Percent moisture was determined by the formula:

$$100.0 - \frac{\text{Net dry weight}}{\text{Net wet weight}} \times 100 = \text{percent moisture}$$

Soil temperature at 15" depth was obtained at each soil moisture sampling site with the use of a thermometer probe. Often a small rod must be driven into the soil to provide access for the thermometers probe.

Precipitation since the previous sampling date was obtained from metal cylindrical gauges of a diameter such that 1 inch of precipitation is equal to 100 ml.

1982 Results

Productivity clippings were obtained at two weeks intervals during the majority of the growth season beginning in late April and ending in latter September. Data were obtained ten times on most locations.

Productivity clippings weights, phenology, and related data are presented in Table 1. Changes in culm weights were positive through mid-June but at many locations, culm weight losses for grasses and for buds of sagebrushes, were closely linked with warm summer temperatures and reduced effective precipitation. Detailed analyses will be conducted in the future.

Table I. Average phenology and productivity clipping weights (gms) for 1982 for each of twenty weight units of the primary species for each sampling date.

Species	Page
Agripyron smithii (vegetative)	43
Agropyron spicatum (vegetative and reproductive)	54
Artemisia nova vegetative.	68
Artemisia nova reproductive.	71
Artemisia tridentata vegetative.	74
Artemisia tridentata reproductive.	86

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   STUDY AREA BUDKIMBAL               AGROPYRON SMITHII                          1982 VEGETATIVE
              ----------            ----------------------

    DATE     PHENOLOGY                        PRODUCTIVITY CLIPPINGS                             MEAN  STD   GROWTH
              VEG  REPR                                                                                DEV   INCREMENT
*************************************************************************************************************

   30 APR      4.4  0.0     .033  .035  .035  .034  .027  .028  .042  .099  .063  .044
                            .038  .039  .028  .054  .056  .035  .054  .045  .037  .038  .044 .0167
                                                                                                         .022
   18 MAY      4.9  0.0     .070  .072  .059  .040  .084  .044  .071  .081  .086  .076
                            .071  .079  .107  .047  .076  .044  .050  .042  .075  .046  .066 .0185
                                                                                                         .016
    2 JUNE     5.0  0.0     .056  .048  .042  .062  .108  .093  .156  .096  .075  .136
                            .051  .118  .061  .110  .060  .055  .091  .078  .070  .082  .082 .0308
                                                                                                         .033
   29 JUNE     5.2  0.0     .145  .208  .201  .209  .161  .058  .146  .134  .061  .095
                            .138  .076  .091  .038  .055  .082  .091  .083  .075  .161  .115 .0535
                                                                                                         .015
   10 JULY     6.1  0.0     .147  .073  .112  .067  .166  .164  .131  .145  .194  .160
                            .219  .157  .097  .114  .106  .060  .099  .138  .111  .153  .131 .0416
                                                                                                        -.023
   26 JULY     6.3  0.0     .087  .098  .099  .074  .208  .098  .098  .077  .140  .123
                            .094  .104  .172  .091  .049  .037  .110  .123  .121  .147  .108 .0392
                                                                                                        -.003
    9 AUG      6.5  0.0     .148  .139  .144  .081  .112  .095  .142  .108  .070  .059
                            .087  .176  .083  .143  .061  .199  .065  .052  .087  .076  .104 .0435
                                                                                                         .011
   28 AUG      7.1  0.0     .046  .136  .111  .129  .087  .069  .108  .077  .118  .091
                            .058  .131  .147  .122  .160  .166  .123  .127  .177  .122  .115 .0353

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
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     STUDY AREA  CUMBER 3                   AGROPYRON SMITHII                            1982 VEGETATIVE
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   DATE     PHENOLOGY                               PRODUCTIVITY CLIPPINGS                          MEAN  STD   GROWTH
              VEG  REPR                                                                                   DEV   INCREMENT
*****************************************************************************************************************************


  30 APR       2.8  0.0       .009  .010  .002  .010  .006  .013  .010  .006  .012  .002
                              .011  .013  .013  .006  .012  .007  .006  .011  .016  .009   .009 .0037
                                                                                                                  .046
   3 JUNE      5.1  0.0       .060  .036  .057  .045  .033  .064  .023  .107  .047  .046
                              .040  .075  .072  .060  .073  .058  .091  .046  .050  .030   .056 .0208
                                                                                                                 -.006
  15 JUNE      5.2  0.0       .057  .069  .025  .049  .022  .063  .028  .060  .047  .036
                              .043  .045  .079  .036  .062  .060  .046  .055  .046  .048   .050 .0161
                                                                                                                  .022
  29 JUNE      5.7  0.0       .032  .078  .060  .057  .074  .025  .041  .067  .103  .061
                              .074  .062  .059  .087  .072  .075  .107  .064  .118 0.000   .072 .0220
                                                                                                                 -.012
  11 JULY      6.2  0.0       .061  .045  .052  .078  .049  .031  .086  .077  .080  .033
                              .036  .060  .053  .098  .061  .042  .051  .068  .051  .062   .060 .0174
                                                                                                                  .040
  27 JULY      6.4  0.0       .115  .094  .107  .091  .054  .041  .038  .039  .069  .095
                              .097  .071  .122  .090  .081  .048  .101  .081  .079  .480   .100 .0930

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
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      STUDY AREA  DEMER                    AGROPYRON SMITHII                          1962 VEGETATIVE
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   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                             MEAN  STD    GROWTH
              VEG  REPR                                                                                  DEV   INCREMENT
*********************************************************************************************************************

  30 APR      4.3  0.0      .054  .049  .044  .040  .064  .042  .060  .068  .063  .046
                            .056  .056  .053  .080  .055  .054  .058 0.000 0.000 0.000   .056 .0102
                                                                                                          -.004
  18 MAY      4.5  0.0      .014  .036  .054  .057  .044  .040  .047  .044  .054  .065
                            .138  .056  .048  .053  .038  .063  .052  .044  .066  .035   .052 .0179
                                                                                                           .002
   2 JUNE     4.5  0.0      .032  .041  .029  .048  .063  .042  .043  .065  .038  .069
                            .036  .085  .060  .075  .063  .030  .062  .055  .042  .051   .054 .0172
                                                                                                           .025
  29 JUNE     5.1  0.0      .059  .085  .076  .092  .069  .066  .077  .103  .077  .046
                            .115  .094  .067  .075  .102  .075  .116  .066  .051  .075   .079 .0194
                                                                                                          -.004
  10 JULY     5.9  0.0      .071  .060  .075  .077  .053  .067  .092  .121  .040  .074
                            .072  .079  .103  .067  .082  .060  .085  .034  .097  .060   .075 .0201
                                                                                                          -.005
  25 JULY     6.3  0.0      .047  .098  .050  .068  .091  .098  .076  .065  .035  .060
                            .034  .078  .044  .079  .055  .120  .056  .071  .070  .059   .070 .0210
                                                                                                           .008
   9 AUG      6.3  0.0      .103  .065  .062  .049  .043  .061  .099  .100  .061  .135
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .078 .0296

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
   STUDY AREA  FARSON               AGROPYRON SMITHII                         1982 VEGETATIVE
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   DATE     PHENOLOGY                           PRODUCTIVITY CLIPPINGS                             MEAN  STD   GROWTH
             VEG  REPR                                                                                   DEV   INCREMENT
**************************************************************************************************************************

  30 APR      3.1  0.0     .018  .019  .018  .016  .010  .012  .014  .015  .016  .012
                           .007  .022  .020  .017  .010  .013  .009  .024  .021  .017  .016 .0044
                                                                                                            .026
  19 MAY      4.5  0.0     .052  .041  .064  .043  .031  .041  .033  .022  .032  .058
                           .058  .038  .081  .023  .026  .012  .048  .054  .041  .038  .042 .0163
                                                                                                            .014
   3 JUNE     4.5  0.0     .081  .060  .049  .065  .037  .040  .041  .050  .051  .058
                           .040  .061  .064  .053  .081  .056  .054  .062  .069  .051  .056 .0123
                                                                                                           -.000
  15 JUNE     4.5  0.0     .057  .061  .067  .043  .044  .043  .062  .076  .069  .089
                           .036  .055  .046  .036  .049  .031  .046  .055  .092  .043  .056 .0169
                                                                                                           -.014
  30 JUNE     6.0  0.0     .035  .035  .036  .051  .037  .057  .046  .033  .029  .052
                           .043  .051  .034  .028  .037  .043  .032  .055  .045  .049  .042 .0089
                                                                                                            .009
  16 JULY     6.4  0.0     .041  .070  .034  .097  .055  .043  .042  .054  .050  .027
                           .060  .039  .045  .069  .056  .051  .027  .040  .072  .044  .051 .0169
                                                                                                            .014
  28 JULY     6.6  0.0     .070  .088  .035  .082  .042  .042  .049  .050  .078  .076
                           .117  .090  .053  .056  .052  .074  .045  .078  .064  .061  .065 .0196
                                                                                                           -.011
   9 AUG      6.6  0.0     .071  .058  .056  .086  .031  .053  .074  .051  .048  .055
                           .023  .034  .065  .063  .038  .039  .066  .061  .050  .048  .053 .0155

                           0.0 = NOT RECORDED

                           MEASUREMENTS IN GRAMS
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     STUDY AREA  HORSE CR                    AGROPYRON SMITHII                                   1982 VEGETATIVE
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    DATE      PHENOLOGY                                 PRODUCTIVITY CLIPPINGS                            MEAN  STD    GROWTH
               VEG  REPR                                                                                        DEV   INCREMENT
****************************************************************************************************************************

   30 APR       4.6  0.0        .026  .104  .050  .029  .059  .069  .081  .047  .090  .059
                                .089  .044  .045  .053  .100  .064  .079  .039  .055  .108  .064 .0246
                                                                                                                .025
   18 MAY       4.7  0.0        .086  .119  .090  .112  .063  .065  .085  .097  .108  .098
                                .094  .108  .073  .097  .086  .066  .055  .061  .059  .110  .090 .0178
                                                                                                                .011
    2 JUNE      4.8  0.0        .105  .053  .099  .105  .093  .120  .128  .129  .062  .089
                                .092  .093  .122  .127  .095  .042  .114  .088  .125  .130  .101 .0256
                                                                                                                .075
   29 JUNE      5.4  0.0        .229  .188  .231  .097  .160  .089  .095  .231  .114  .095
                                .120  .183  .133  .102  .169  .276  .234  .207  .229  .312  .176 .0673
                                                                                                                .018
   26 JULY      6.2  0.0        .182  .188  .273  .177  .177  .145  .223  .207  .204  .169
                                .190  .190  .210  .125  .141  .224  .291  .092  .180  .282  .194 .0501
                                                                                                               -.057
    9 AUG       6.5  0.0        .183  .120  .127  .123  .158  .067  .077  .075  .129  .143
                                .111  .164  .146  .201  .122  .246  .129  .096  .186  .137  .137 .0444
                                                                                                                .009
   28 AUG       6.9  0.0        .125  .175  .140  .127  .230  .115  .192  .143  .174  .080
                                .078  .077  .233  .220  .174  .133  .099  .119  .156  .138  .146 .0478

                                 0.0 = NOT RECORDED

                                 MEASUREMENTS IN GRAMS
   STUDY AREA  MESA ANT                AGROPYRON SMITHII                         1982 VEGETATIVE
               ----------           ----------------------

  DATE      PHENOLOGY                                PRODUCTIVITY CLIPPINGS                             MEAN  STD   GROWTH
             VEG  REPR                                                                                         DEV   INCREMENT
**************************************************************************************************************************


 30 APR      3.0  0.0     .007  .021  .005  .009  .011  .008  .008  .007  .008  .013
                          .005  .015  .008  .006  .006  .006  .005  .011  .010  .009  .009 .0039
                                                                                                               .027
 19 MAY      4.3  0.0     .032  .019  .033  .035  .058  .048  .016  .032  .020  .089
                          .067  .035  .024  .021  .033  .038  .037  .039  .012  .036  .036 .0183
                                                                                                               .010
  3 JUNE     4.6  0.0     .038  .041  .050  .038  .036  .046  .047  .051  .029  .040
                          .075  .062  .055  .046  .057  .022  .043  .032  .066  .048  .046 .0130
                                                                                                               .011
 15 JUNE     5.3  0.0     .057  .077  .034  .049  .104  .065  .043  .055  .061  .057
                          .055  .069  .061  .081  .053  .032  .040  .046  .035  .044  .057 .0187
                                                                                                              -.005
 30 JUNE     5.5  0.0     .109  .050  .063  .055  .047  .063  .046  .021  .082  .039
                          .075  .050  .023  .033  .047  .054  .063  .043  .072  .008  .052 .0229
                                                                                                               .003
 10 JULY     6.3  0.0     .043  .051  .026  .053  .073  .071  .059  .092  .072  .039
                          .041  .048  .074  .073  .035  .065  .045  .060  .046  .043  .056 .0165
                                                                                                               .002
 27 JULY     6.3  0.0     .113  .058  .035  .044  .056  .056  .106  .048  .043  .053
                          .049  .063  .051  .053  .049  .054  .061  .078  .019  .045  .057 .0216
                                                                                                               .003
  9 AUG      5.4  0.0     .056  .024  .032  .041  .066  .061  .056  .031  .058  .024
                          .034  .112  .083  .092  .053  .073  .069  .069  .064  .075  .060 .0240

                          0.0 = NOT RECORDED

                          MEASUREMENTS IN GRAMS
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    STUDY AREA  OWL DRAW                AGROPYRON SMITHII                             1982 VEGETATIVE
                ----------            ----------------------

   DATE      PHENOLOGY                            PRODUCTIVITY CLIPPINGS                        MEAN  STD   GROWTH
              VEG  REPR                                                                              DEV   INCREMENT
*****************************************************************************************************************

   1 MAY      4.0  0.0     .021  .016  .026  .026  .025  .029  .036  .032  .014  .015
                           .021  .014  .006  .011  .015  .014  .016  .014  .016  .014  .019 .0077
                                                                                                        .006
  17 MAY      4.3  0.0     .025  .023  .017  .031  .021  .026  .022  .015  .033  .022
                           .018  .022  .015  .051  .013  .029  .026  .041  .030  .017  .025 .0093
                                                                                                        .028
   1 JUNE     5.1  0.0     .051  .040  .056  .035  .032  .068  .050  .048  .032  .076
                           .049  .056  .059  .058  .060  .058  .036  .086  .032  .052  .053 .0166
                                                                                                        .028
  28 JUNE     5.3  0.0     .109  .074  .091  .056  .047  .095  .083  .050  .084  .062
                           .079  .079  .087  .130  .054  .081  .090  .068  .106  .104  .081 .0215
                                                                                                        .035
  11 JULY     6.0  0.0     .128  .205  .076  .092  .081  .106  .208  .170  .079  .083
                           .054  .087  .076  .206  .149  .051  .214  .047  .103  .116  .117 .0561
                                                                                                       -.037
  10 AUG      6.4  0.0     .057  .078  .044  .099  .126  .075  .086  .041  .090  .084
                           .106  .079  .095  .077  .094  .085  .065  .065  .074  .066  .079 .0203
                                                                                                       -.007
  27 AUG      6.4  0.0     .095  .145  .098  .032  .104  .032  .098  .055  .091  .060
                           .048  .039  .037  .092  .038  .084  .063  .054  .099  .077  .072 .0308

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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     STUDY AREA  REDWASH2                    AGROPYRON SMITHII                          1982 VEGETATIVE
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       DATE      PHENOLOGY                           PRODUCTIVITY CLIPPINGS                                MEAN   STD    GROWTH
                   VEG  REPR                                                                                      DEV    INCREMENT
****************************************************************************************************************************************


      29 APR        2.8  0.0          .005  .017  .012  .012  .019  .010  .022  .017  .013  .008
                                      .016  .022  .011  .008  .008  .013  .023  .026  .019  .013   .015 .0058
                                                                                                                      .026
      20 MAY        3.2  0.0          .058  .037  .030  .035  .039  .053  .024  .046  .031  .042
                                      .043  .028  .028  .057  .065  .043  .026  .056  .023  .057   .041 .0130
                                                                                                                      .011
       2 JUNE       4.6  0.0          .042  .056  .061  .056  .011  .060  .041  .064  .045  .057
                                      .052  .036  .051  .048  .059  .063  .045  .045  .087  .070   .052 .0152
                                                                                                                      .020
      14 JUNE       4.6  9.0          .052  .043  .070  .031  .044  .018  .058  .049  .039  .076
                                      .043  .187  .165  .108  .107  .075  .053  .089 0.000  .070   .072 .0437
                                                                                                                      .019
      28 JUNE       5.4  0.0          .087  .054  .109  .068  .049  .066  .074  .079  .063  .077
                                      .101  .103  .102  .041  .080  .077  .085  .162  .175  .181   .092 .0394
                                                                                                                    -.020
      11 JULY       6.3  0.0          .044  .048  .059  .100  .076  .052  .077  .092  .098  .060
                                      .075  .114  .063  .069  .069  .062  .073  .062 0.000 0.000   .072 .0189
                                                                                                                    -.008
      25 JULY       6.3  0.0          .033  .039  .063  .069  .077  .095  .049  .033  .045  .049
                                      .061  .045  .080  .043  .055  .079  .063  .179  .042  .084   .064 .0325
                                                                                                                    -.005
      10 AUG        6.5  0.0          .071  .042  .081  .057  .078  .031  .107  .034  .071  .043
                                      .065  .061  .055  .063  .042  .057  .062  .088  .059  .020   .059 .0207

                                       0.0 = NOT RECORDED

                                       MEASUREMENTS IN GRAMS
     STUDY AREA SHOSHON 7                AGROPYRON SMITHII                              1982 VEGETATIVE
                ----------             ----------------------

   DATE      PHENOLOGY                           PRODUCTIVITY CLIPPINGS                                    MEAN  STD    GROWTH
              VEG  REPR                                                                                          DEV   INCREMENT
***********************************************************************************************************************************

   29 APR     2.6  0.0      .014  .027  .041  .014  .019  .050  .016  .010  .008  .008
                            .005  .030  .009  .032  .073  .008  .023  .004  .009  .025   .021 .0175
                                                                                                          .004
   17 MAY     3.3  0.0      .019  .019  .027  .021  .017  .016  .031  .032  .047  .013
                            .023  .016  .048  .068  .018  .009  .027  .019  .012  .024   .025 .0144
                                                                                                          .019
    1 JUNE    3.9  0.0      .033  .091  .061  .031  .043  .026  .062  .038  .087  .032
                            .017  .042  .027  .026  .048  .051  .072  .021  .047  .025   .044 .0211
                                                                                                         -.014
   16 JUNE    4.0  0.0      .029  .050  .050  .030  .026  .015  .014  .074  .011  .017
                            .015  .041  .013  .031  .033  .021  .022  .025  .036  .061   .031 .0171
                                                                                                          .027
   28 JUNE    4.9  0.0      .039  .073  .095  .027  .038  .056  .069  .057  .047  .040
                            .109  .057  .053  .074  .079  .038  .077  .028  .045  .046   .057 .0220
                                                                                                          .000
   10 JULY    5.7  0.0      .092  .064  .082  .056  .023  .044  .034  .060  .048  .084
                            .081  .073  .039  .058  .038  .051  .035  .067  .075  .047   .058 .0194
                                                                                                          .006
   25 JULY    6.1  0.0      .105  .117  .057  .083  .076  .069  .057  .051  .045  .037
                            .035  .076  .033  .060  .069  .052  .107  .067  .028  .044   .063 .0252
                                                                                                          .005
    8 AUG     6.3  0.0      .024  .096  .065  .103  .040  .036  .059  .041  .033  .160
                            .219  .119  .053  .033  .020  .042  .045  .047  .062  .073   .068 .0498
                                                                                                          .048
   28 AUG     6.5  0.0      .047  .078  .138  .135  .063  .135  .087  .166  .140  .040
                            .165  .205  .239  .089  .209  .085  .077  .122  .082  .028   .117 .0590

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
   STUDY AREA SWEETWTER                  AGROPYRON SMITHII                              1982 VEGETATIVE
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  DATE      PHENOLOGY                                PRODUCTIVITY CLIPPINGS                                   MEAN  STD    GROWTH
             VEG  REPR                                                                                             DEV   INCREMENT
*****************************************************************************************************************************

   1 MAY      3.6  0.0     .010  .013  .016  .009  .007  .019  .028  .025  .014  .013
                           .008  .011  .015  .011  .006  .019  .005  .011  .004  .016   .013 .0063
                                                                                                               .021
  19 MAY      4.2  0.0     .026  .027  .038  .046  .022  .040  .034  .039  .032  .030
                           .013  .017  .024  .052  .034  .040  .037  .086  .021  .012   .034 .0163
                                                                                                               .019
   4 JUNE     4.6  0.0     .057  .053  .067  .040  .036  .033  .032  .034  .045  .062
                           .058  .086  .066  .051  .052  .067  .022  .089  .045  .062   .053 .0176
                                                                                                               .001
  17 JUNE     5.2  0.0     .055  .036  .031  .051  .060  .041  .065  .063  .036  .068
                           .071  .080  .037  .074  .055  .079  .047  .043  .051  .044   .054 .0171
                                                                                                               .002
  10 JULY     6.2  0.0     .029  .034  .030  .063  .041  .071  .064  .092  .071  .048
                           .092  .076  .031  .089  .061  .053  .039  .041  .031  .068   .056 .0215
                                                                                                               .016
  25 JULY     6.4  0.0     .057  .099  .136  .037  .046  .056  .020  .122  .127  .105
                           .032  .070  .100  .116  .065  .049  .042  .056  .073  .035   .072 .0355
                                                                                                              -.010
  27 AUG      7.1  0.0     .043  .064  .052  .078  .070  .051  .073  .067  .027  .040
                           .060  .059  .064  .068  .050  .086  .091  .054  .035  .107   .062 .0196

                           0.0 = NOT RECORDED

                           MEASUREMENTS IN GRAMS
   STUDY AREA UPPERGOVT                 AGROPYRON SMITHII                          1982 VEGETATIVE
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  DATE      PHENOLOGY                             PRODUCTIVITY CLIPPINGS                          MEAN  STD    GROWTH
             VEG  REPR                                                                                  DEV   INCREMENT
******************************************************************************************************************************

  29 APR     2.7  0.0      .013  .017  .012  .007  .007  .014  .014  .002  .012  .011
                           .014  .006  .011  .012  .006  .028  .009  .022  .024  .024   .013 .0068
                                                                                                           .005
  19 MAY     3.0  0.0      .012  .007  .023  .010  .012  .014  .029  .016  .025  .009
                           .028  .008  .031  .018  .028  .017  .031  .027  .010  .013   .018 .0085
                                                                                                           .003
   1 JUNE    4.0  0.0      .018  .024  .016  .031  .021  .028  .014  .018  .022  .020
                           .021  .009  .029  .023  .029  .033  .012  .018  .026  .016   .022 .0066
                                                                                                           .022
  13 JUNE    4.1  0.0      .063  .041  .022  .049  .029  .028  .075  .043  .031  .044
                           .078  .052  .035  .047  .015  .037  .066  .029  .037  .047   .043 .0169
                                                                                                         -.007
  26 JUNE    4.7  0.0      .048  .033  .021  .032  .039  .025  .047  .084  .037  .046
                           .029  .034  .026  .054  .020  .035  .020  .032  .036  .036   .037 .0146
                                                                                                           .003
  11 JULY    6.0  0.0      .040  .064  .035  .040  .031  .031  .039  .021  .074  .035
                           .056  .024  .027  .029  .079  .023  .043  .029  .043  .034   .040 .0164
                                                                                                           .001
  25 JULY    6.2  0.0      .031  .035  .022  .044  .031  .046  .040  .056  .065  .029
                           .024  .047  .025  .049  .076  .024  .022  .055  .046  .053   .041 .0153
                                                                                                         -.004
  10 AUG     6.6  0.0      .020  .062  .026  .041  .037  .037  .031  .037  .040 0.000
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .037 .0117

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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     STUDY AREA BUDKIMBAL                  AGROPYRON SPICATUM                           1982 VEGETATIVE
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   DATE     PHENOLOGY                            PRODUCTIVITY CLIPPINGS                               MEAN  STD    GROWTH
             VEG  REPR                                                                                      DEV   INCREMENT
*************************************************************************************************************************

  30 APR      3.5  0.0      .016  .029  .028  .040  .036  .019  .031  .017  .019  .012
                            .026  .015  .047  .022  .039  .024  .033  .016  .011  .022  .025 .0101
                                                                                                             .018
  18 MAY      3.6  0.0      .037  .106  .031  .045  .041  .040  .045  .025  .028  .035
                            .037  .066  .045  .034  .050  .075  .038  .017  .036  .038  .043 .0196
                                                                                                             .010
   2 JUNE     5.2  0.0      .086  .052  .057  .038  .056  .053  .046  .029  .056  .058
                            .050  .076  .039  .078  .041  .049  .073  .057  .019  .051  .053 .0164
                                                                                                             .071
  29 JUNE     5.7 11.9      .150  .123  .095  .103  .062  .131  .182  .111  .130  .155
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .124 .0340
                                                                                                            -.012
  10 JULY     6.1 14.7      .114  .103  .089  .051  .106  .277  .049  .080  .167  .085
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .112 .0670
                                                                                                            -.014
  26 JULY     6.3 16.1      .112  .097  .107  .047  .044  .074  .112  .139  .127  .126
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .099 .0331
                                                                                                             .022
   9 AUG      6.5 15.4      .102  .083  .193  .211  .155  .112  .125  .029  .125  .066
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .120 .0556
                                                                                                            -.030
  28 AUG      6.7 16.8      .096  .071  .159  .099  .079  .042  .086  .080  .124  .066
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .090 .0325

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
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    STUDY AREA BUDKIMBAL                    AGROPYRON SPICATUM                              1982 REPRODUCTIVE
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       DATE      PHENOLOGY                         PRODUCTIVITY CLIPPINGS                                  MEAN  STD   GROWTH
                  VEG  REPR                                                                                    DEV   INCREMENT
**************************************************************************************************************************


     29 JUNE     5.7 11.9    .199  .178  .135  .180  .152  .170  .132  .224  .351  .137
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .186 .0652
                                                                                                              .050
     10 JULY     6.1 14.7    .159  .178  .136  .280  .257  .238  .422  .160  .325  .207
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .236 .0887
                                                                                                             -.084
     26 JULY     6.3 16.1    .113  .205  .189  .117  .161  .127  .141  .166  .094  .210
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .152 .0404
                                                                                                              .051
      9 AUG      6.5 16.4    .254  .332  .188  .119  .201  .161  .278  .130  .223  .144
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .203 .0692
                                                                                                             -.019
     28 AUG      6.7 16.8    .208  .173  .232  .188  .194  .180  .112  .111  .227  .216
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .184 .0428

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
      STUDY AREA CEDAR MTN                 AGROPYRON SPICATUM                 1982 VEGETATIVE
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    DATE     PHENOLOGY                     PRODUCTIVITY CLIPPINGS                         MEAN  STD   GROWTH
              VEG  REPR                                                                         DEV   INCREMENT
***********************************************************************************************************


  29 APR      3.3  0.0     .009  .005  .007  .015  .011  .011  .018  .011  .012  .014
                           .016  .010  .021  .011  .037  .013  .008  .010  .010  .006   .011 .0039
                                                                                                         .034
  20 MAY      4.4  0.0     .062  .033  .053  .063  .057  .062  .043  .043  .053  .085
                           .025  .044  .025  .068  .051  .025  .025  .038  .028  .023   .045 .0176
                                                                                                         .013
   2 JUNE     5.3  0.0     .047  .036  .034  .116  .046  .094  .085  .023  .060  .081
                           .035  .066  .086  .084  .044  .033  .052  .031  .035  .062   .059 .0262
                                                                                                         .002
  14 JUNE     5.4 10.4     .038  .048  .062  .063  .046  .066  .092  .047  .066  .072
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .060 .0156
                                                                                                         .008
  29 JUNE     5.8 10.8     .079  .089  .067  .031  .058  .073  .086  .050  .050  .078
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .068 .0197
                                                                                                        -.001
  11 JULY     6.2 11.1     .072  .089  .074  .038  .068  .023  .047  .069  .129  .061
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .067 .0291
                                                                                                        -.021
  26 JULY     6.3 16.5     .062  .019  .041  .036  .070  .068  .060  .025  .033  .046
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .046 .0182
                                                                                                         .008
  10 AUG      6.3 16.9     .037  .034  .053  .030  .033  .029  .054  .088  .064  .114
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .054 .0283

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
   STUDY AREA CEDAR MTN                AGROPYRON SPICATUM                             1982 REPRODUCTIVE
              ----------               -----------------------

    DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                                  MEAN  STD    GROWTH
               VEG  REPR                                                                                       DEV   INCREMENT
*****************************************************************************************************************************

   14 JUNE      5.4 10.4      .069  .091  .131  .158  .133  .142  .127  .088  .080  .122
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .114 .0298
                                                                                                               .055
   29 JUNE      5.8 10.8      .139  .352  .120  .250  .296  .074  .109  .083  .100  .163
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .169 .0968
                                                                                                               .040
   11 JULY      6.2 11.1      .142  .181  .142  .132  .146  .204  .259  .246  .320  .312
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .208 .0719
                                                                                                              -.033
   26 JULY      6.3 16.5      .234  .114  .145  .125  .223  .221  .229  .213  .133  .120
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .176 .0518
                                                                                                              -.061
   10 AUG       6.3 16.9      .140  .127  .102  .087  .089  .126  .114  .090  .124  .145
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .114 .0214

                               0.0 = NOT RECORDED

                               MEASUREMENTS IN GRAMS
    STUDY AREA  NUMBER 3                  AGROPYRON SPICATUM                            1982 VEGETATIVE
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    DATE     PHENOLOGY                             PRODUCTIVITY CLIPPINGS                              MEAN   STD    GROWTH
              VEG  REPR                                                                                       DEV    INCREMENT
**************************************************************************************************************************

   30 APR     3.0   0.0     .004   .008   .012   .013   .003   .013   .004   .007   .010   .004
                            .012   .005   .005   .006   .006   .010   .008   .007   .006   .007   .007  .0032
                                                                                                                    .047
    3 JUNE    4.9   0.0     .050   .042   .073   .059   .067   .015   .037   .042   .051   .058
                            .057   .057   .071   .053   .026   .071   .063   .075   .071   .043   .054  .0162
                                                                                                                   -.010
   15 JUNE    5.3   9.0     .045   .042   .051   .031   .017   .041   .034   .052   .056   .079
                            .065   .060   .061   .048   .033   .039   .053   .028   .015   .024   .044  .0166
                                                                                                                    .024
   11 JULY    6.3  11.4     .071   .091   .040   .106   .062   .049   .049   .079   .072   .062
                          0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000   .068  .0203
                                                                                                                    .003
   27 JULY    6.4  16.6     .094   .109   .066   .057   .065   .041   .058   .064   .098   .063
                          0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000   .072  .0214
                                                                                                                    .007
    9 AUG     6.4  16.9     .081   .044   .059   .047   .052   .119   .161   .074   .058   .089
                          0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000  0.000   .078  .0369

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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        STUDY AREA  CUMBER 3                  AGROPYRON SPICATUM                       1982 REPRODUCTIVE
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      DATE    PHENOLOGY                       PRODUCTIVITY CLIPPINGS                     MEAN  STD   GROWTH
               VEG  REPR                                                                       DEV   INCREMENT
**************************************************************************************************************


    11 JULY     6.3 11.4     .184  .175  .155  .210  .193  .175  .097  .108  .176  .079
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .155 .0446
                                                                                                       .026
    27 JULY     6.4 16.6     .129  .100  .167  .157  .221  .161  .268  .172  .231  .205
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .181 .0503
                                                                                                      -.065
     9 AUG      6.4 16.9     .125  .122  .109  .125  .145  .090  .101  .061  .101  .161
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .116 .0246

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
     STUDY AREA  DEMER                        AGROPYRON SPICATUM                        1982 VEGETATIVE
                 ----------                  -----------------------

   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                               MEAN  STD   GROWTH
              VEG  REPR                                                                                    DEV   INCREMENT
*******************************************************************************************************************

  30 APR     3.5  0.0     .040  .048  .033  .030  .057  .020  .060  .038  .065  .029
                          .026  .066  .010  .039  .039  .060  .059  .014  .052  .050   .042 .0169
                                                                                                         .021
  18 MAY     3.4  0.0     .024  .066  .017  .058  .050  .061  .094  .086  .074  .128
                          .022  .060  .039  .021  .077  .093  .076  .084  .047  .049   .062 .0292
                                                                                                         .009
   2 JUNE    5.2  9.3     .099  .113  .110  .056  .063  .059  .086  .054  .035  .038
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .071 .0287
                                                                                                         .047
  29 JUNE    5.8 13.4     .230  .144  .165  .086  .034  .072  .119  .167  .100  .063
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .118 .0590
                                                                                                         .002
  16 JULY    6.1 15.9     .104  .100  .085  .112  .074  .234  .073  .146  .072  .202
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .120 .0567
                                                                                                        -.003
  25 JULY    6.2 16.0     .103  .099  .107  .095  .221  .100  .101  .084  .174  .084
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .117 .0446
                                                                                                        -.026
   9 AUG     6.4 16.5     .107  .102  .096  .071  .090  .075  .109  .080  .061  .116
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .091 .0183

                          0.0 = NOT RECORDED

                          MEASUREMENTS IN GRAMS
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        STUDY AREA  DEMER         AGROPYRON SPICATUM                       1982 REPRODUCTIVE
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      DATE    PHENOLOGY                       PRODUCTIVITY CLIPPINGS                     MEAN  STD   GROWTH
               VEG  REPR                                                                       DEV   INCREMENT
**************************************************************************************************************

     2 JUNE     5.2  9.3     .279  .183  .205  .102  .221  .183  .127  .158  .136  .091
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 .169 .0578
                                                                                                       .041
    29 JUNE     5.6 13.4     .311  .207  .234  .241  .094  .181  .191  .192  .141  .303
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 .210 .0668
                                                                                                       .101
    10 JULY     5.1 15.9     .256  .221  .420  .232  .491  .274  .316  .281  .288  .329
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 .311 .0848
                                                                                                      -.033
    25 JULY     6.2 16.0     .203  .333  .410  .221  .244  .310  .274  .265  .264  .247
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 .278 .0597
                                                                                                      -.062
     9 AUG      5.4 15.5     .188  .158  .234  .282  .394  .211  .153  .193  .196  .147
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 .216 .0746

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
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   STUDY AREA  HORSE CR                    AGROPYRON SPICATUM                      1962 VEGETATIVE
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   DATE     PHENOLOGY                              PRODUCTIVITY CLIPPINGS                              MEAN  STD   GROWTH
             VEG  REPR                                                                                      DEV   INCREMENT
************************************************************************************************************************


  30 APR     4.8  0.0     .035  .030  .030  .028  .062  .043  .024  .019  .046  .020
                          .029  .039  .051  .013  .022  .025  .049  .042  .055  .055   .036 .0140
                                                                                                              .026
  18 MAY     4.9  0.0     .056  .033  .013  .063  .060  .071  .058  .066  .063  .169
                          .068  .058  .100  .039  .038  .033  .096  .051  .042  .063   .062 .0324
                                                                                                             -.013
   2 JUNE    5.3  9.5     .083  .060  .063  .045  .060  .030  .060  .036  .018  .041
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .049 .0165
                                                                                                             -.003
  29 JUNE    5.7 10.6     .072  .017  .027  .069  .035  .045  .028  .063  .066  .037
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .046 .0201
                                                                                                              .089
   9 JULY    6.2 13.8     .075  .159  .165  .117  .134  .106  .160  .074  .104  .219
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .135 .0490
                                                                                                             -.052
  26 JULY    6.3 16.7     .133  .099  .098  .103  .016  .066  .061  .094  .069  .095
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .084 .0313
                                                                                                              .044
   9 AUG     6.5 15.9     .058  .072  .150  .118  .084  .120  .096  .298  .109  .160
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .127 .0606
                                                                                                              .034
  28 AUG     6.6 18.9     .185  .225  .213  .093  .158  .171  .128  .090  .172  .180
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .162 .0456

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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       STUDY AREA  HORSE CR                   AGROPYRON SPICATUM                       1982 REPRODUCTIVE
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     DATE      PHENOLOGY                             PRODUCTIVITY CLIPPINGS                                MEAN  STD    GROWTH
                VEG  REPR                                                                                        DEV    INCREMENT
********************************************************************************************************************************


      2 JUNE      5.3  9.5     .063  .095  .221  .074  .089  .111  .149  .146  .135  .114
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .119 .0464
                                                                                                              .147
     29 JUNE      5.7 10.6     .201  .178  .261  .143  .230  .180  .240  .471  .496  .259
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .266 .1209
                                                                                                             -.061
     26 JULY      6.3 16.7     .191  .179  .183  .146  .137  .266  .193  .146  .212  .380
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .205 .0748
                                                                                                              .049
      9 AUG       6.5 16.9     .229  .191  .286  .304  .207  .149  .317  .235  .253  .367
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .254 .0654
                                                                                                             -.064
     28 AUG       6.6 16.9     .175  .166  .162  .129  .256  .204  .184  .199  .167  .236
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .190 .0367

                                0.0 = NOT RECORDED

                                MEASUREMENTS IN GRAMS
      STUDY AREA  OWL DRAW                  AGROPYRON SPICATUM                         1982 VEGETATIVE
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        DATE     PHENOLOGY                            PRODUCTIVITY CLIPPINGS                                MEAN  STD    GROWTH
                  VEG  REPR                                                                                       DEV    INCREMENT
*********************************************************************************************************************************

       1 MAY      4.1  0.0       .005  .005  .009  .007  .013  .012  .013  .011  .012  .014
                                 .016  .024  .019  .019  .017  .015  .011  .023  .013  .005   .013 .0055
                                                                                                                   .011
      17 MAY      4.6  0.0       .003  .037  .038  .030  .061  .024  .016  .024  .016  .013
                                 .031  .018  .030  .023  .023  .022  .030  .019  .015  .011   .024 .0123
                                                                                                                   .022
       1 JUNE     5.2  0.0       .034  .047  .037  .047  .037  .074  .033  .026  .027  .024
                                 .034  .025  .049  .038  .049  .044  .068  .088  .050  .092   .046 .0199
                                                                                                                   .006
      26 JUNE     5.3 10.4       .051  .050  .086  .052  .035  .048  .045  .070  .041  .046
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .052 .0149
                                                                                                                   .036
      11 JULY     6.1 14.5       .045  .056  .112  .088  .056  .133  .052  .068  .136  .144
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .089 .0393
                                                                                                                   .009
      10 AUG      6.3 16.6       .034  .097  .048  .124  .130  .091  .166  .122  .093  .068
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .097 .0401
                                                                                                                  -.011
      27 AUG      6.4 16.9       .085  .062  .126  .055  .090  .064  .077  .113  .084  .109
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .086 .0235

                                  0.0 = NOT RECORDED

                                  MEASUREMENTS IN GRAMS
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     STUDY AREA  OWL DRAW                    AGROPYRON SPICATUM                      1982 REPRODUCTIVE
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   DATE      PHENOLOGY                              PRODUCTIVITY CLIPPINGS                              MEAN  STD   GROWTH
              VEG  REPR                                                                                       DEV   INCREMENT
************************************************************************************************************************

  28 JUNE     5.3 10.4     .120  .071  .139  .074  .117  .127  .156  .172  .138  .216
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .133 .0432
                                                                                                      .078
  11 JULY     6.1 14.5     .154  .237  .222  .196  .266  .134  .224  .220  .298  .163
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .211 .0509
                                                                                                     -.050
  10 AUG      6.3 18.6     .183  .225  .213  .093  .158  .171  .128  .090  .172  .180
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .162 .0456
                                                                                                      .003
  27 AUG      6.4 16.9     .128  .162  .265  .162  .158  .214  .249  .136  .063  .069
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .165 .0682

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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       STUDY AREA  REDWASH2                   AGROPYRON SPICATUM                          1982 VEGETATIVE
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      DATE      PHENOLOGY                               PRODUCTIVITY CLIPPINGS                                  MEAN  STD    GROWTH
                 VEG  REPR                                                                                            DEV   INCREMENT
*************************************************************************************************************************************

     29 APR      3.8  0.0      .011  .024  .025  .017  .014  .105  .007  .009  .010  .010
                               .014  .016  .009  .006  .010  .009  .014  .010  .013  .008   .017 .0213
                                                                                                                   .012
     20 MAY      4.8  0.0      .026  .015  .018  .023  .030  .043  .028  .028  .031  .021
                               .027  .031  .023  .025  .041  .028  .021  .025  .054  .042   .029 .0095
                                                                                                                   .026
      2 JUNE     4.9  0.0      .044  .049  .059  .050  .050  .042  .051  .063  .062  .039
                               .037  .044  .034  .033  .088  .066  .070  .068  .082  .065   .055 .0155
                                                                                                                  -.007
     14 JUNE     5.1  9.6      .114  .079  .045  .019  .030  .027  .028  .045  .026  .039
                               .075  .055  .064  .054  .039  .019  .038  .046  .044  .061   .047 .0231
                                                                                                                   .049
     26 JUNE     5.6 10.5      .112  .076  .161  .071  .057  .073  .069  .089  .163  .093
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .096 .0378
                                                                                                                  -.028
     11 JULY     6.3 11.6      .062  .117  .059  .057  .054  .060 0.000 0.000 0.000 0.000
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .068 .0241
                                                                                                                  -.004
     25 JULY     6.4 16.3      .057  .045  .073  .039  .074  .059  .074  .088  .060  .057
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .064 .0146
                                                                                                                   .010
     10 AUG      6.5 17.2      .034  .105  .055  .102  .056  .067  .056  .122  .103  .039
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .074 .0314

                                0.0 = NOT RECORDED

                                MEASUREMENTS IN GRAMS
     STUDY AREA  REDWASH2                  AGROPYRON SPICATUM                        1982 REPRODUCTIVE
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      DATE      PHENOLOGY                        PRODUCTIVITY CLIPPINGS                              MEAN  STD   GROWTH
                 VEG  REPR                                                                               DEV   INCREMENT
****************************************************************************************************************************

    28 JUNE      5.6 10.5       .193  .181  .129  .234  .146  .186  .274  .095  .055  .127
                               0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .162 .0651
                                                                                                        -.008
    11 JULY      6.3 11.6       .101  .177  .119  .172  .150  .213  .143  .197  .142  .124
                               0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .154 .0356
                                                                                                        -.011
    25 JULY      6.4 16.3       .203  .105  .053  .146  .174  .070  .152  .113  .162  .230
                               0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .143 .0573
                                                                                                         .025
    10 AUG       6.5 17.2       .161  .129  .282  .193  .112  .116  .201  .145  .173 0.000
                               0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .168 .0532

                                 0.0 = NOT RECORDED

                                 MEASUREMENTS IN GRAMS
     STUDY AREA  HORSE CR                  ARTEMISIA NOVA                              1982 VEGETATIVE
                 ----------              ------------------------

     DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                                    MEAN   STD    GROWTH
                VEG  REPR                                                                                      DEV    INCREMENT
*******************************************************************************************************************************


   30 APR      3.2  0.0       .003  .004  .004  .003  .001  .002  .003  .003  .005  .002
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .003 .0012
                                                                                                              .009
   16 MAY      3.3  0.0       .016  .013  .013  .105  .021  .008  .014  .009  .009  .009
                              .002  .002  .002  .002  .004  .003  .002  .002  .002  .002   .012 .0226
                                                                                                             -.008
    2 JUNE     3.6  9.1       .004  .004  .003  .004  .007  .002  .003  .004  .006  .002
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .004 .0016
                                                                                                              .011
   29 JUNE     4.2  9.5       .013  .012  .011  .008  .013  .016  .014  .017  .027  .012
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .015 .0052
                                                                                                              .029
    9 JULY     4.3  9.5       .044  .061  .040  .040  .044  .051  .029  .064  .032  .028
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .043 .0124
                                                                                                              .014
   26 JULY     4.5  9.7       .058  .069  .049  .050  .083  .044  .070  .054  .026  .073
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .058 .0166
                                                                                                             -.014
    9 AUG      4.6  9.8       .035  .043  .079  .051  .016  .043  .071  .023  .020  .054
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .044 .0210
                                                                                                              .014
   26 AUG      4.6  9.8       .044  .039  .040  .038  .056  .014  .043  .040  .093  .162
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .057 .0419
                                                                                                              .003
   17 SEPT     5.1 13.3       .039  .090  .046  .074  .044  .047  .048  .057  .049  .073
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .060 .0158

                               0.0 = NOT RECORDED

                               MEASUREMENTS IN GRAMS
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        STUDY AREA  OWL DRAW                ARTEMISIA NOVA                                1982 VEGETATIVE
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      DATE       PHENOLOGY                              PRODUCTIVITY CLIPPINGS                                   MEAN  STD    GROWTH
                  VEG  REPR                                                                                           DEV    INCREMENT
*************************************************************************************************************************************

       1 MAY       2.9  0.0       .002  .002  .003  .002  .005  .006  .001  .001  .002  .003
                                 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000    .003 .0016
                                                                                                                  .002
      17 MAY       3.3  0.0       .003  .002  .008  .009  .003  .006  .005  .003  .003  .012
                                  .006  .005  .006  .010  .004  .006  .003  .002  .005  .002    .005 .0028
                                                                                                                 -.001
       1 JUNE      3.3  9.1       .003  .003  .004  .005  .005  .006  .004  .004  .004  .005
                                 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000    .004 .0009
                                                                                                                  .002
      28 JUNE      4.0  9.3       .005  .007  .008  .008  .007  .002  .005  .010  .005  .005
                                 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000    .006 .0023
                                                                                                                  .026
      11 JULY      4.2  9.5       .021  .034  .025  .029  .030  .033  .031  .045  .061  .016
                                 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000    .033 .0127
                                                                                                                 -.001
      10 AUG       4.4  9.8       .045  .027  .023  .025  .030  .044  .029  .025  .045  .026
                                 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000    .032 .0090
                                                                                                                 -.014
      27 AUG       4.5  9.6       .013  .024  .017  .026  .009  .030  .014  .010  .020  .021
                                 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000    .018 .0070
                                                                                                                  .001
      16 SEPT      5.1 13.4       .021  .017  .019  .040  .011  .018  .018  .014  .018  .022
                                 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000    .020 .0078

                                  0.0 = NOT RECORDED

                                  MEASUREMENTS IN GRAMS
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    STUDY AREA SWEETWATER                 ARTEMISIA NOVA                                1982 VEGETATIVE
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    DATE      PHENOLOGY                         PRODUCTIVITY CLIPPINGS                        MEAN  STD    GROWTH
               VEG  REPR                                                                             DEV    INCREMENT
*********************************************************************************************************************

   19 MAY     3.2  0.0     .007  .010  .014  .012  .006  .007  .007  .004  .012  .009
                           .006  .005  .013  .004  .003  .007  .005  .005  .007  .006   .007 .0032
                                                                                                           .009
    4 JUNE    3.3  9.2     .039  .009  .010  .014  .027  .016  .034  .025  .006  .013
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .016 .0093
                                                                                                          -.009
   16 JUNE    3.5  9.3     .014  .004  .006  .006  .008  .005  .005  .011  .004  .007
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .007 .0032
                                                                                                           .010
   28 JUNE    3.5  9.4     .032  .022  .013  .026  .008  .013  .008  .017  .020  .010
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .017 .0080
                                                                                                          -.008
   10 JULY    3.6  9.5     .005  .007  .009  .014  .008  .009  .010  .006  .008 0.000
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .008 .0026
                                                                                                           .013
   25 JULY    4.1  9.5     .015  .022  .015  .023  .019  .021  .028  .020  .025  .024
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .021 .0042
                                                                                                          -.005
   27 AUG     4.6  9.8     .014  .015  .019  .021  .016  .009  .026  .017  .013  .014
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .017 .0047

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
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     STUDY AREA  HORSE CR              ARTEMISIA NOVA                              1982 REPRODUCTIVE
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    DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                                   MEAN  STD   GROWTH
               VEG  REPR                                                                                        DEV   INCREMENT
*****************************************************************************************************************************

   2 JUNE     3.6  9.1     .060  .059  .065  .041  .029  .035  .029  .045  .036  .039
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .044 .0131
                                                                                                         .021
  29 JUNE     4.2  9.5     .063  .042  .033  .108  .058  .056  .091  .075  .042  .084
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .065 .0240
                                                                                                        -.004
   9 JULY     4.3  9.5     .100  .038  .062  .090  .043  .041  .059  .073  .042 0.000
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .061 .0227
                                                                                                         .025
  26 JULY     4.5  9.7     .127  .045  .079  .066  .104  .116  .073  .073  .050  .106
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .086 .0272
                                                                                                         .071
   9 AUG      4.6  9.3     .150  .237  .281  .149  .150  .043  .142  .206  .092  .114
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .156 .0696
                                                                                                         .034
  28 AUG      4.6  9.8     .043  .061  .186  .306  .161  .469  .188  .079  .300  .108
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .190 .1340
                                                                                                        -.031
  17 SEPT     5.1 10.3     .102  .206  .079  .293  .087  .110  .195  .163  .159  .195
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .159 .0667

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
    STUDY AREA  OWL DRAW              ARTEMISIA NOVA                                     1982 REPRODUCTIVE
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    DATE      PHENOLOGY                       PRODUCTIVITY CLIPPINGS                                MEAN  STD   GROWTH
               VEG  REPR                                                                                 DEV   INCREMENT
**************************************************************************************************************************


     1 JUNE      3.3  9.1      .012  .021  .020  .023  .015  .025  .028  .024  .014  .009
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .019 .0063
                                                                                                            .028
    28 JUNE      4.0  9.3      .017  .031  .032  .026  .023  .018  .030  .033  .239  .024
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .047 .0676
                                                                                                            .003
    11 JULY      4.2  9.5      .037  .024  .050  .064  .096  .049  .052  .060  .040  .035
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .051 .0200
                                                                                                            .037
    10 AUG       4.4  9.8      .063  .188  .085  .098  .146  .087  .044  .028  .096  .042
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .088 .0497
                                                                                                           -.028
    27 AUG       4.5  9.3      .069  .075  .098  .016  .034  .057  .109  .064  .050  .021
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .059 .0306
                                                                                                            .022
    16 SEPT      5.1 13.4      .057  .101  .139  .053  .111  .063  .076  .076  .063  .076
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .081 .0274

                                 0.0 = NOT RECORDED

                                 MEASUREMENTS IN GRAMS
     STUDY AREA SWEETWTER                    ARTEMISIA NOVA                          1982 REPRODUCTIVE
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     DATE     PHENOLOGY                              PRODUCTIVITY CLIPPINGS                             MEAN  STD   GROWTH
               VEG  REPR                                                                                      DEV   INCREMENT
*************************************************************************************************************************

    4 JUNE     3.3  9.2     .013  .016  .014  .012  .010  .012  .006  .010  .011  .004
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .011 .0035
                                                                                                              .012
   16 JUNE     3.5  9.3     .007  .013  .011  .010  .017  .107  .017  .010  .018  .016
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .023 .0299
                                                                                                              .008
   28 JUNE     3.5  9.4     .015  .067  .021  .035  .022  .018  .022  .033  .061  .017
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .031 .0186
                                                                                                             -.003
   10 JULY     3.6  9.5     .026  .030  .014  .039  .028  .024  .038  .047  .016  .018
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .028 .0108
                                                                                                              .017
   25 JULY     4.1  9.5     .027  .074  .072  .052  .042  .025  .033  .038  .032  .058
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .045 .0179
                                                                                                             -.016
   27 AUG      4.6  9.8     .023  .025  .026  .021  .030  .023  .025  .027  .040  .050
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .029 .0091

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
     STUDY AREA BUDKIMBAL              ARTEMISIA TRIDENTATA                   1982 VEGETATIVE
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   DATE     PHENOLOGY                        PRODUCTIVITY CLIPPINGS                              MEAN  STD   GROWTH
             VEG  REPR                                                                                DEV   INCREMENT
*************************************************************************************************************************

  30 APR      3.2  0.0     .001  .003  .001  .002  .004  .002  .003  .002  .006  .003
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .003 .0015
                                                                                                         .019
  18 MAY      3.3  0.0     .025  .015  .018  .012  .022  .016  .028  .017  .023  .030
                           .014  .027  .035  .025  .031  .026  .014  .019  .018  .022  .022 .0064
                                                                                                        -.017
   2 JUNE     3.5  9.1     .005  .004  .005  .004  .003  .004  .006  .007  .005  .003
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .005 .0013
                                                                                                         .012
  29 JUNE     4.1  9.4     .015  .013  .019  .021  .014  .019  .022  .010  .017  .016
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .017 .0037
                                                                                                         .046
  10 JULY     4.2  9.5     .062  .057  .052  .043  .074  .150  .046  .039  .021  .077
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .062 .0351
                                                                                                        -.009
  26 JULY     4.6  9.5     .035  .048  .051  .052  .054  .042  .092  .082  .053  .021
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .053 .0206
                                                                                                        -.006
   9 AUG      4.6  9.7     .041  .025  .047  .023  .046  .063  .070  .033  .073  .046
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .047 .0175
                                                                                                        -.012
  28 AUG      4.6  9.8     .015  .012  .070  .058  .057  .014  .029  .023  .035  .029
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .034 .0205
                                                                                                         .012
  17 SEPT     5.2 10.4     .040  .041  .043  .054  .031  .069  .060  .024  .075  .028
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .047 .0174

                           0.0 = NOT RECORDED

                           MEASUREMENTS IN GRAMS
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    STUDY AREA CEDAR MTN                ARTEMISIA TRIDENTATA                      1982 VEGETATIVE
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    DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                                 MEAN  STD    GROWTH
               VEG  REPR                                                                                      DEV   INCREMENT
*****************************************************************************************************************************

   29 APR      2.5  0.0     .002  .001  .002  .001  .001  .001  .001  .001  .003  .002
                            .001  .001  .003  .002  .002  .003  .002  .002  .002  .002   .002 .0007
                                                                                                              .004
   20 MAY      3.2  0.0     .007  .005  .002  .007  .004  .011  .008  .003  .014  .002
                            .008  .004  .004  .007  .004  .008  .004  .004  .003  .002   .006 .0032
                                                                                                              .008
    2 JUNE     3.3  9.2     .013  .012  .002  .013  .013  .016  .023  .013  .012  .016
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .013 .0052
                                                                                                             -.004
   14 JUNE     3.8  9.3     .029  .010  .010  .007  .010  .015  .004  .003  .005  .005
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .010 .0077
                                                                                                              .019
   29 JUNE     3.9  9.5     .022  .019  .018  .034  .026  .044  .023  .005  .059  .036
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .029 .0152
                                                                                                             -.008
   11 JULY     4.0  9.6     .017  .021  .023  .015  .023  .022  .021  .021  .020  .022
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .021 .0026
                                                                                                              .000
   26 JULY     4.3  9.6     .023  .028  .023  .020  .027  .017  .023  .005  .019  .029
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .021 .0069
                                                                                                             -.005
   13 AUG      4.9  9.7     .003  .019  .014  .016  .020  .025  .017  .016  .011  .018
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .016 .0059

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
   STUDY AREA  CUMBER 3                    ARTEMISIA TRIDENTATA                        1982 VEGETATIVE
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   DATE     PHENOLOGY                              PRODUCTIVITY CLIPPINGS                                  MEAN  STD   GROWTH
             VEG  REPR                                                                                           DEV   INCREMENT
******************************************************************************************************************************

   3 JUNE     3.4  9.2      .030  .026  .021  .030  .057  .050  .009  .042  .022  .020
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .031 .0149
                                                                                                              -.024
  15 JUNE     3.6  9.2      .005  .008  .004  .006  .009  .010  .004  .007  .012  .012
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .008 .0030
                                                                                                               .038
  29 JUNE     3.9  9.4      .067  .033  .057  .046  .016  .057  .030  .072  .031 0.000
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .045 .0191
                                                                                                              -.025
  11 JULY     4.1  9.6      .025  .024  .019  .023  .015  .017  .029  .021  .018  .018
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .021 .0043
                                                                                                               .029
  27 JULY     4.5  9.6      .057  .037  .026  .057  .122  .055  .025  .019  .043  .074
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .050 .0305
                                                                                                              -.027
   9 AUG      4.9  9.7      .015  .029  .009  .021  .014  .027  .037  .019  .029 0.000
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .022 .0089

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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     STUDY AREA  DEMER                       ARTEMISIA TRIDENTATA                        1982 VEGETATIVE
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   DATE      PHENOLOGY                       PRODUCTIVITY CLIPPINGS                          MEAN  STD    GROWTH
              VEG  REPR                                                                            DEV    INCREMENT
***************************************************************************************************************

   30 APR     3.2  0.0     .013  .012  .006  .007  .015  .021  .007  .008  .012  .008
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .011 .0046
                                                                                                      .001
   18 MAY     3.3  0.0     .014  .004  .008  .016  .012  .014  .011  .007  .016  .022
                           .010  .008  .013  .007  .022  .012  .007  .007  .011  .003   .011 .0052
                                                                                                     -.006
    2 JUNE    3.5  9.0     .007  .006  .007  .007  .004  .005  .004  .003  .004  .005
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .005 .0015
                                                                                                      .015
   29 JUNE    4.0  9.3     .060  .015  .006  .010  .036  .015  .011  .015  .019  .014
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .020 .0161
                                                                                                      .029
   10 JULY    4.0  9.4     .054  .067  .036  .078  .034  .031  .030  .042  .060  .055
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .049 .0166
                                                                                                     -.037
   25 JULY    4.1  9.5     .005  .007  .013  .026  .006  .006  .016  .009  .012  .013
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .011 .0064
                                                                                                      .063
    9 AUG     4.4  9.7     .170  .073  .026  .029  .190  .074  .067  .058  .031  .026
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .074 .0591

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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      STUDY AREA  FARSON                       ARTEMISIA TRIDENTATA                        1982 VEGETATIVE
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       DATE     PHENOLOGY                             PRODUCTIVITY CLIPPINGS                             MEAN  STD   GROWTH
                 VEG  REPR                                                                                     DEV   INCREMENT
*********************************************************************************************************************************

     19 MAY      3.2  0.0     .010  .019  .017  .013  .007  .022  .015  .009  .012  .011
                              .018  .016  .013  .026  .028  .016  .009  .021  .009  .016  .015 .0058
                                                                                                               .006
      3 JUNE     3.3  0.0     .019  .012  .024  .022  .019  .012  .022  .025  .020  .021
                              .037  .025  .013  .020  .021  .018  .038  .023  .035  .023  .021 .0070
                                                                                                              -.013
     15 JUNE     3.4  9.0     .005  .012  .009  .007  .006  .009  .009  .008  .008  .007
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .008 .0018
                                                                                                               .014
     30 JUNE     3.5  9.2     .022  .017  .019  .023  .020  .020  .026  .013  .031  .026
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .022 .0051
                                                                                                              -.010
     10 JULY     3.6  9.5     .011  .009  .008  .006  .010  .015  .009  .017  .018  .010
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .011 .0040
                                                                                                               .034
     28 JULY     4.1  9.5     .037  .038  .096  .026  .046  .026  .050  .053  .049  .030
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .045 .0205
                                                                                                              -.037
      9 AUG      4.7  9.7     .012  .004  .007  .007  .006  .010  .008  .006  .009  .010
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .008 .0024

                               0.0 = NOT RECORDED

                               MEASUREMENTS IN GRAMS
     STUDY AREA  HORSE CR              ARTEMISIA TRIDENTATA                          1982 VEGETATIVE
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       DATE    PHENOLOGY                              PRODUCTIVITY CLIPPINGS                                 MEAN  STD    GROWTH
                VEG  REPR                                                                                          DEV   INCREMENT
*****************************************************************************************************************************

      30 APR      3.3  0.0     .009  .009  .008  .013  .010  .015  .008  .007  .007  .009
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .009 .0026
                                                                                                                 -.000
      16 MAY      3.3  0.0     .007  .005  .017  .017  .005  .014  .012  .009  .010  .010
                               .011  .004  .007  .017  .005  .009  .009  .003  .003  .011   .009 .0045
                                                                                                                 -.003
       2 JUNE     3.6  9.1     .005  .008  .007  .004  .006  .006  .008  .005  .006  .004
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .006 .0014
                                                                                                                  .016
      29 JUNE     4.1  9.4     .027  .017  .012  .020  .018  .024  .018  .048  .020  .013
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .022 .0103
                                                                                                                  .040
       9 JULY     4.5  9.5     .098  .058  .099  .074  .075  .034  .066  .044  .015  .059
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .062 .0265
                                                                                                                  .048
      26 JULY     4.7  9.6     .095  .086  .104  .070  .098  .128  .098  .104  .130  .193
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .111 .0339
                                                                                                                 -.031
       9 AUG      4.7  9.7     .093  .078  .077  .040  .023  .112  .075  .042  .207  .048
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .080 .0524
                                                                                                                 -.053
      26 AUG      4.9  9.7     .018  .020  .031  .020  .035  .029  .019  .034  .035  .023
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .026 .0071
                                                                                                                  .117
      17 SEPT     5.2 10.2     .137  .094  .119  .060  .270  .265  .151  .163  .051  .126
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .144 .0746

                                0.0 = NOT RECORDED

                                MEASUREMENTS IN GRAMS
     STUDY AREA  MESA ANT                    ARTEMISIA TRIDENTATA                       1982 VEGETATIVE
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   DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                           MEAN  STD   GROWTH
              VEG  REPR                                                                                DEV   INCREMENT
*********************************************************************************************************************

  19 MAY      3.3  0.0     .002  .011  .014  .013  .009  .009  .021  .019  .026  .006
                           .009  .007  .023  .009  .012  .010  .007  .008  .010  .003   .012 .0063
                                                                                                        .019
   3 JUNE     3.4  9.0     .028  .031  .039  .031  .020  .015  .037  .021  .035  .027
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .030 .0106
                                                                                                       -.025
  15 JUNE     3.7  9.2     .005  .010  .004  .008  .004  .005  .007  .006  .004  .006
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .006 .0020
                                                                                                        .029
  30 JUNE     3.9  9.4     .029  .052  .035  .022  .035  .047  .026  .041  .036  .026
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .035 .0096
                                                                                                       -.017
  10 JULY     4.1  9.6     .012  .019  .013  .014  .013  .016  .014  .026  .026  .023
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .018 .0055
                                                                                                        .033
  27 JULY     4.6  9.6     .053  .054  .045  .023  .050  .049  .058  .051  .034  .080
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .051 .0155
                                                                                                       -.020
   9 AUG      4.9  9.8     .034  .031  .022  .028  .030  .024  .027  .040  .027  .046
                          0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .031 .0074

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
   STUDY AREA  OWL DRAW                  ARTEMISIA TRIDENTATA                       1962 VEGETATIVE
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    DATE     PHENOLOGY                            PRODUCTIVITY CLIPPINGS                            MEAN  STD   GROWTH
              VEG  REPR                                                                                   DEV   INCREMENT
*****************************************************************************************************************************

    1 MAY      3.2  0.0     .004  .003  .003  .006  .003  .003  .005  .002  .003  .009
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .004 .0021
                                                                                                        -.002
   17 MAY      3.3  0.0     .001  .003  .002  .002  .002  .001  .001  .003  .002  .003
                            .001  .002  .001  .002  .002  .003  .001  .002  .006  .002   .002 .0012
                                                                                                         .002
    1 JUNE     3.5  9.1     .005  .006  .004  .002  .004  .002  .006  .001  .009  .004
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .004 .0024
                                                                                                         .004
   28 JUNE     4.0  9.3     .009  .004  .011  .010  .009  .008  .012  .007  .005  .005
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .008 .0027
                                                                                                         .067
   11 JULY     4.2  9.5     .106  .040  .087  .061  .218  .070  .046  .062  .031  .025
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .075 .0562
                                                                                                        -.032
   10 AUG      4.5  9.7     .029  .049  .077  .028  .024  .033  .034  .069 0.000 0.000
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .043 .0201
                                                                                                        -.017
   27 AUG      4.6  9.8     .016  .021  .030  .036  .021  .015  .032  .028  .021  .035
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .026 .0077

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
    STUDY AREA  REDWASH2                    ARTEMISIA TRIDENTATA                        1982 VEGETATIVE
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   DATE     PHENOLOGY                            PRODUCTIVITY CLIPPINGS                          MEAN  STD   GROWTH
             VEG  REPR                                                                                DEV   INCREMENT
*****************************************************************************************************************


 29 APR      2.2  0.0     .003  .001  .002  .004  .002  .002  .001  .003  .001  .001
                          .002  .002  .004  .003  .002  .002  .003  .001  .003  .002   .002 .0016
                                                                                                       .003
 20 MAY      3.1  0.0     .002  .004  .004  .006  .004  .016  .005  .006  .003  .005
                          .008  .002  .006  .005  .003  .003  .006  .007  .008  .007   .005 .0031
                                                                                                       .001
  2 JUNE     3.3  9.1     .005  .008  .004  .004  .004  .010  .005  .017  .006  .003
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .007 .0042
                                                                                                       .001
 14 JUNE     3.6  9.1     .011  .010  .006  .011  .005  .003  .006  .004  .013  .005
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .007 .0035
                                                                                                       .026
 28 JUNE     3.6  9.3     .023  .030  .015  .037  .038  .047  .028  .029  .048  .039
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .033 .0104
                                                                                                      -.014
 11 JULY     4.0  9.5     .019  .019  .017  .016  .019  .016  .023  .025  .017  .023
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .019 .0032
                                                                                                       .019
 25 JULY     4.4  9.6     .039  .048  .051  .033  .035  .044  .026  .043  .032  .036
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .039 .0078
                                                                                                      -.019
 10 AUG      4.8  9.7     .021  .026  .019  .020  .012  .012  .043  .018  .015  .014
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .020 .0092

                            0.0 = NOT RECORDED

                            MEASUREMENTS IN GRAMS
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        STUDY AREA SHOSHON 7                  ARTEMISIA TRIDENTATA                     1982 VEGETATIVE
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     DATE     PHENOLOGY                          PRODUCTIVITY CLIPPINGS                               MEAN  STD   GROWTH
               VEG  REPR                                                                                  DEV   INCREMENT
*******************************************************************************************************************************

    29 APR      2.8  0.0     .003  .002  .008  .004  .004  .004  .005  .002  .004  .005
                             .003  .002  .001  .001  .003  .002  .003  .002  .002  .003   .003 .0016
                                                                                                              .001
    17 MAY      3.2  0.0     .003  .006  .005  .006  .004  .006  .008  .004  .002  .004
                             .003  .008  .003  .004  .002  .003  .003  .004  .002  .010   .005 .0022
                                                                                                             -.001
     1 JUNE     3.4  9.1     .005  .004  .002  .004  .002  .003  .005  .004  .005  .004
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .004 .0011
                                                                                                              .036
    16 JUNE     3.4  9.4     .049  .052  .029  .054  .045  .025  .049  .024  .035  .035
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .040 .0114
                                                                                                             -.031
    28 JUNE     3.7  9.4     .007  .007  .012  .003  .010  .007  .008  .007  .010  .014
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .009 .0031
                                                                                                              .019
    10 JULY     3.9  9.4     .020  .031  .047  .036  .024  .015  .018  .011  .029  .039
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .027 .0115
                                                                                                              .001
    25 JULY     4.0  9.5     .036  .030  .029  .018  .023  .031  .042  .017  .024  .027
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .028 .0077
                                                                                                              .013
     8 AUG      4.1  9.7     .031  .016  .052  .037  .013  .043  .077  .051  .025  .060
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .041 .0202
                                                                                                             -.015
    28 AUG      4.3  9.8     .024  .031  .042  .042  .008  .031  .012  .038  .012  .011
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .025 .0135
                                                                                                             -.002
    19 SEPT     5.1 10.7     .012  .014  .021  .033  .051  .019  .014  .032  .021  .010
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .023 .0126

                               0.0 = NOT RECORDED

                               MEASUREMENTS IN GRAMS
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   STUDY AREA SWEETWTER                ARTEMISIA TRIDENTATA                      1982 VEGETATIVE
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   DATE     PHENOLOGY                          PRODUCTIVITY CLIPPINGS                             MEAN  STD   GROWTH
             VEG  REPR                                                                                  DEV   INCREMENT
***************************************************************************************************************************


  19 MAY      3.2  0.0      .025  .014  .025  .024  .009  .019  .034  .024  .019  .011
                            .008  .016  .025  .021  .029  .019  .016  .020  .012  .016   .019 .0068
                                                                                                           .000
   3 JUNE     3.3  9.0      .020  .026  .018  .023  .022  .024  .012  .020  .013 0.000
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .020 .0048
                                                                                                          -.013
  16 JUNE     3.6  9.2      .007  .010  .005  .009  .007  .008  .002  .005  .006  .004
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .007 .0025
                                                                                                           .027
  28 JUNE     3.6  9.4      .028  .053  .044  .032  .032  .021  .013  .033  .040  .031
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .033 .0114
                                                                                                          -.017
  10 JULY     3.7  9.5      .019  .009  .028  .017  .012  .014  .019  .014  .015  .014
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .016 .0052
                                                                                                           .021
  25 JULY     4.2  9.6      .039  .036  .058  .043  .032  .034  .026  .014  .048  .040
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .037 .0120
                                                                                                          -.009
  27 AUG      4.6  9.7      .031  .017  .041  .039  .014  .051  .022  .019  .028  .020
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .028 .0121

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
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      STUDY AREA UPPERGOVT                 ARTEMISIA TRIDENTATA                      1982 VEGETATIVE
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   DATE      PHENOLOGY                        PRODUCTIVITY CLIPPINGS                           MEAN  STD   GROWTH
               VEG  REPR                                                                             DEV   INCREMENT
*************************************************************************************************************************

    29 APR      2.9  0.0     .002  .001  .001  .003  .001  .002  .003  .002  .002  .003
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .002 .0008
                                                                                                      .006
    19 MAY      3.2  0.0     .004  .002  .006  .017  .010  .017  .010  .015  .003  .006
                             .006  .008  .005  .011 0.000  .013  .002  .006  .004  .006  .008 .0048
                                                                                                     -.003
     1 JUNE     3.3  9.0     .003  .006  .004  .003  .005  .004  .003  .007  .004  .004
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .005 .0013
                                                                                                      .015
    13 JUNE     3.4  9.3     .028  .033  .018  .017  .017  .014  .016  .020  .016  .011
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .019 .0066
                                                                                                     -.008
    28 JUNE     3.8  9.3     .013  .018  .015  .011  .008  .019  .007  .010  .005  .004
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .011 .0052
                                                                                                      .027
    11 JULY     3.9  9.4     .036  .045  .032  .039  .025  .032  .055  .046  .053  .032
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .036 .0069
                                                                                                     -.020
    25 JULY     4.0  9.5     .015  .020  .023  .018  .014  .016  .015  .020  .018  .015
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .017 .0029
                                                                                                      .013
    10 AUG      4.1  9.7     .036  .040  .047  .036  .036  .008  .014  .016  .046  .021
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .030 .0140
                                                                                                     -.009
    27 AUG      4.4  9.8     .022  .006  .027  .013  .015  .021  .035  .022  .021  .032
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .021 .0087

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
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  STUDY AREA BUDKIMBAL                ARTEMISIA TRIDENTATA                        1982 REPRODUCTIVE
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   DATE     PHENOLOGY                             PRODUCTIVITY CLIPPINGS                               MEAN  STD   GROWTH
             VEG  REPR                                                                                       DEV   INCREMENT
*********************************************************************************************************************************


   2 JUNE    3.5  9.1     .055  .037  .032  .030  .038  .055  .040  .053  .025  .063
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .043 .0128
                                                                                                          .021
  29 JUNE    4.1  9.4     .049  .057  .053  .052  .037  .118  .078  .054  .062  .057
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .064 .0232
                                                                                                          .035
  10 JULY    4.2  9.5     .105  .127  .052  .203  .058  .028  .091  .050  .058  .211
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .098 .0643
                                                                                                          .060
  26 JULY    4.5  9.5     .221  .202  .129  .107  .157  .176  .075  .173  .165  .175
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .158 .0436
                                                                                                         -.078
   9 AUG     4.6  9.7     .049  .040  .086  .204  .057  .137  .069  .077  .055  .025
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .080 .0533
                                                                                                          .032
  28 AUG     4.6  9.8     .036  .147  .113  .134  .102  .050  .245  .115  .047 0.000
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .112 .0620
                                                                                                          .030
  17 SEPT    5.2 10.4     .174  .068  .322  .130  .099  .071  .168  .085  .106  .202
                         0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .143 .0780

                           0.0 = NOT RECORDED

                           MEASUREMENTS IN GRAMS
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     STUDY AREA CEDAR MTN                   ARTEMISIA TRIDENTATA                      1982 REPRODUCTIVE
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     DATE     PHENOLOGY                           PRODUCTIVITY CLIPPINGS                                MEAN  STD    GROWTH
               VEG  REPR                                                                                      DEV   INCREMENT
*****************************************************************************************************************************


     2 JUNE      3.3  9.2      .027  .026  .027  .028  .021  .019  .021  .016  .022  .027
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .023 .0041
                                                                                                             .002
    14 JUNE      3.6  9.3      .026  .027  .023  .017  .030  .020  .033  .031  .020 0.000
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .025 .0056
                                                                                                             .021
    29 JUNE      3.9  9.5      .067  .026  .038  .027  .036  .039  .022  .117  .062  .033
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .047 .0288
                                                                                                             .026
    11 JULY      4.0  9.6      .063  .049  .083  .066  .041  .061  .090  .084  .085  .082
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .073 .0166
                                                                                                             .007
    26 JULY      4.3  9.6      .088  .072  .054  .096  .101  .125  .069  .042  .065  .083
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .080 .0243
                                                                                                             .026
    10 AUG       4.9  9.7      .143  .103  .117  .071  .074  .062  .080  .109  .082  .198
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .106 .0395

                                0.0 = NOT RECORDED

                                MEASUREMENTS IN GRAMS
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   STUDY AREA  NUMBER 3                  ARTEMISIA TRIDENTATA               1982 REPRODUCTIVE
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  DATE      PHENOLOGY                           PRODUCTIVITY CLIPPINGS                                MEAN  STD   GROWTH
              VEG  REPR                                                                                     DEV   INCREMENT
***************************************************************************************************************************

  3 JUNE      3.4   9.2     .024  .023  .043  .029  .031  .029  .036  .015  .037  .022
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .029 .0083
                                                                                                         -.005
 15 JUNE      3.6   9.2     .029  .044  .026  .027  .020  .023  .012  .023  .019  .016
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .024 .0087
                                                                                                          .032
 29 JUNE      3.9   9.4     .045  .041  .089  .032  .054  .052  .049  .109  .029  .059
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .056 .0250
                                                                                                          .010
 11 JULY      4.1   9.6     .043  .087  .056  .078  .090  .034  .053  .051  .066  .103
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .066 .0226
                                                                                                          .005
 27 JULY      4.5   9.6     .093  .189  .077  .024  .041  .021  .053  .064  .048  .100
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .071 .0491
                                                                                                          .025
  9 AUG       4.9   9.7     .056  .105  .078  .138  .181  .146  .049  .043  .106  .054
                           0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .096 .0476

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
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     STUDY AREA  DEMER                    ARTEMISIA TRIDENTATA                        1982 REPRODUCTIVE
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      DATE     PHENOLOGY                        PRODUCTIVITY CLIPPINGS                                   MEAN  STD   GROWTH
                 VEG  REPR                                                                                     DEV   INCREMENT
******************************************************************************************************************************

     2 JUNE     3.5  9.0     .018  .027  .071  .063  .046  .050  .057  .026  .045  .049
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .045 .0170
                                                                                                       .012
    29 JUNE     4.0  9.3     .028  .040  .019  .040  .049  .027  .249  .043  .030  .043
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .057 .0682
                                                                                                      -.004
    10 JULY     4.3  9.4     .052  .067  .039  .092  .032  .052  .066  .036  .033  .045
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .052 .0193
                                                                                                       .018
    25 JULY     4.1  9.5     .109  .104  .102  .062  .047  .076  .035  .043  .048  .076
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .070 .0275
                                                                                                       .012
     9 AUG      4.4  9.7     .041  .038  .356  .078  .063  .091  .029  .016  .049  .059
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .082 .0988

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
     STUDY AREA  FARSON                        ARTEMISIA TRIDENTATA                         1982 REPRODUCTIVE
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      DATE      PHENOLOGY                            PRODUCTIVITY CLIPPINGS                              MEAN   STD    GROWTH
                 VEG  REPR                                                                                      DEV    INCREMENT
******************************************************************************************************************************


    15 JUNE      3.4  9.0      .038  .019  .009  .015  .016  .012  .012  .017  .015  .013
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .017 .0080
                                                                                                              .006
    30 JUNE      3.5  9.2      .012  .009  .018  .024  .019  .018  .020  .027  .050  .024
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .022 .0112
                                                                                                              .003
    10 JULY      3.6  9.5      .023  .028  .017  .032  .031  .027  .043  .014  .016  .017
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .025 .0090
                                                                                                              .025
    28 JULY      4.1  9.6      .034  .055  .041  .026  .038  .070  .014  .035  .069  .116
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .050 .0293
                                                                                                             -.026
     9 AUG       4.7  9.7      .020  .005  .040  .030  .024  .041  .030  .010  .011  .028
                              0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .024 .0124

                                 0.0 = NOT RECORDED

                                 MEASUREMENTS IN GRAMS
    STUDY AREA  HORSE CR              ARTEMISIA TRIDENTATA                    1982 REPRODUCTIVE
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     DATE      PHENOLOGY                      PRODUCTIVITY CLIPPINGS                         MEAN  STD   GROWTH
                VEG  REPR                                                                        DEV   INCREMENT
*****************************************************************************************************************


    2 JUNE      3.6  9.1     .041  .075  .052  .052  .050  .108  .076  .040  .046  .027
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .057 .0235
                                                                                                       .033
   29 JUNE      4.1  9.4     .171  .060  .129  .077  .096  .050  .093  .075  .048  .098
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .090 .0378
                                                                                                       .084
    9 JULY      4.5  9.5     .175  .094  .115  .134  .442  .105  .063  .216  .258  .136
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .174 .1109
                                                                                                      -.015
   26 JULY      4.7  9.6     .172  .148  .184  .214  .080  .156  .257  .153  .133  .091
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .159 .0528
                                                                                                      -.050
    9 AUG       4.7  9.7     .165  .250  .029  .095  .161  .108  .046  .054  .076  .098
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .108 .0670
                                                                                                       .239
   28 AUG       4.9  9.7     .304  .169  .264  .457  .485  .340  .443  .245  .317  .445
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .347 .1063
                                                                                                      -.014
   17 SEPT      5.2 10.2     .250  .426  .807  .186  .251  .338  .363  .271  .107 0.000
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .333 .2014

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
   STUDY AREA  MESA ANT                ARTEMISIA TRIDENTATA                  1982 REPRODUCTIVE
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   DATE     PHENOLOGY                        PRODUCTIVITY CLIPPINGS                           MEAN  STD   GROWTH
              VEG  REPR                                                                              DEV   INCREMENT
******************************************************************************************************************


   3 JUNE      3.4   9.0      .072  .068  .083  .101  .087  .024  .055  .045  .033  .066
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .063 .0244
                                                                                                       -.031
  15 JUNE      3.7   9.2      .098  .025  .021  .020  .027  .002  .011  .033  .023  .063
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .032 .0280
                                                                                                        .009
  30 JUNE      3.9   9.4      .045  .041  .030  .042  .046  .054  .037  .039  .053  .030
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .042 .0082
                                                                                                        .036
  10 JULY      4.1   9.6      .075  .078  .044  .087  .054  .066  .175  .070  .060  .065
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .077 .0364
                                                                                                       -.023
  27 JULY      4.6   9.6      .023  .022  .092  .034  .072  .049  .032  .067  .101 0.000
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .054 .0301
                                                                                                        .035
   9 AUG       4.9   9.8      .075  .120  .123  .078  .078  .079  .076  .113  .093  .062
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .090 .0214

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
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        STUDY AREA  OWL DRAW                  ARTEMISIA TRIDENTATA                     1982 REPRODUCTIVE
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      DATE    PHENOLOGY                       PRODUCTIVITY CLIPPINGS                     MEAN  STD   GROWTH
               VEG  REPR                                                                       DEV   INCREMENT
**************************************************************************************************************

     1 JUNE     3.5  9.1     .017  .025  .041  .019  .039  .029  .049  .058  .049  .052
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .038 .0145
                                                                                                       .038
    28 JUNE     4.0  9.3     .061  .034  .093  .146  .058  .066  .061  .074  .058  .102
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .075 .0313
                                                                                                       .003
    11 JULY     4.2  9.5     .065  .051  .037  .161  .077  .103  .062  .118  .059  .044
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .079 .0380
                                                                                                       .009
    10 AUG      4.5  9.7     .149  .073  .063  .076  .170  .067  .048  .057  .085  .068
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .088 .0400
                                                                                                       .128
    27 AUG      4.6  9.8     .235  .265  .232  .211  .274  .144  .129  .296  .125  .241
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .215 .0619

                             0.0 = NOT RECORDED

                             MEASUREMENTS IN GRAMS
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   STUDY AREA  REDWASH2                ARTEMISIA TRIDENTATA                          1982 REPRODUCTIVE
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   DATE      PHENOLOGY                        PRODUCTIVITY CLIPPINGS                               MEAN  STD    GROWTH
              VEG  REPR                                                                                  DEV    INCREMENT
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    2 JUNE     3.3   9.1      .011  .029  .008  .017  .006  .016  .019  .026  .014  .013
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .016 .0073
                                                                                                            .019
   14 JUNE     3.6   9.1      .032  .033  .037  .026  .045  .030  .034  .047  .027  .034
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .035 .0069
                                                                                                            .015
   28 JUNE     3.6   9.3      .094  .055  .052  .069  .034  .040  .030  .018  .053 0.000
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .049 .0227
                                                                                                            .026
   11 JULY     4.0   9.5      .072  .065  .049  .061  .061  .078  .073  .061  .145  .074
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .076 .0261
                                                                                                           -.005
   25 JULY     4.4   9.6      .053  .101  .044  .090  .089  .090  .024  .034  .082  .098
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .071 .0284
                                                                                                            .053
   10 AUG      4.8   9.7      .042  .118  .116  .086  .134  .167  .110  .118  .086  .266
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  .124 .0597

                               0.0 = NOT RECORDED

                               MEASUREMENTS IN GRAMS
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        STUDY AREA SHOSHON 7                  ARTEMISIA TRIDENTATA                      1982 REPRODUCTIVE
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      DATE    PHENOLOGY                       PRODUCTIVITY CLIPPINGS                      MEAN  STD   GROWTH
               VEG  REPR                                                                        DEV   INCREMENT
***************************************************************************************************************

     1 JUNE     3.4  9.1     .014  .029  .016  .017  .014  .021  .020  .034  .016  .012
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .019 .0071
                                                                                                        .087
    16 JUNE     3.4  9.4     .070  .061  .097  .161  .111  .049  .092  .194  .130  .077
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .106 .0443
                                                                                                       -.070
    28 JUNE     3.7  9.4     .043  .053  .028  .031  .027  .033  .036  .037  .026  .048
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .036 .0092
                                                                                                       -.005
    10 JULY     3.9  9.4     .033  .036  .033  .019  .020  .053  .028  .020  .023  .043
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .031 .0112
                                                                                                        .023
    25 JULY     4.0  9.5     .029  .071  .051  .037  .057  .034  .062  .114  .052  .030
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .054 .0255
                                                                                                        .003
     8 AUG      4.1  9.7     .094  .066  .041  .050  .034  .042  .112  .038  .043  .047
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .057 .0262
                                                                                                        .001
    28 AUG      4.3  9.8     .021  .096  .065  .052  .028  .098  .061  .039  .018  .082
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .058 .0310
                                                                                                        .045
    19 SEPT     5.1 10.7     .098  .133  .130  .120  .083  .113  .099  .065  .105  .080
                            0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .103 .0222

                              0.0 = NOT RECORDED

                              MEASUREMENTS IN GRAMS
     STUDY AREA SWEETWTER                    ARTEMISIA TRIDENTATA                    1982 REPRODUCTIVE
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        DATE     PHENOLOGY                          PRODUCTIVITY CLIPPINGS                          MEAN  STD   GROWTH
                 VEG  REPR                                                                                DEV   INCREMENT
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       3 JUNE     3.3  9.0    .013  .018  .032  .032  .037  .033  .038  .020  .016  .019
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .026 .0094
                                                                                                          -.001
      16 JUNE     3.6  9.2    .016  .023  .016  .014  .020  .021  .020  .035  .046  .035
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .025 .0105
                                                                                                           .024
      28 JUNE     3.6  9.4    .054  .047  .032  .062  .090  .038  .037  .056  .034  .038
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .049 .0177
                                                                                                           .025
      10 JULY     3.7  9.6    .068  .034  .071  .053  .066  .059  .078  .071  .128  .106
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .073 .0265
                                                                                                          -.015
      25 JULY     4.2  9.6    .082  .050  .051  .033  .051  .084  .071  .059  .033  .075
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .059 .0186
                                                                                                          -.020
      27 AUG      4.6  9.7    .032  .058  .074  .026  .033  .015  .031  .052  .046  .019
                             0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .039 .0185

                               0.0 = NOT RECORDED

                               MEASUREMENTS IN GRAMS
        STUOY AREA UPPERGOVT                  ARTEMISIA TRIDENTATA                    1982 REPROOUCTIVE
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       DATE      PHENOLOGY                          PRODUCTIVITY CLIPPINGS                         MEAN  STD   GROWTH
                  VEG  REPR                                                                               OEV   INCREMENT
**************************************************************************************************************


        1 JUNE      3.3  9.0     .017  .011  .021  .023  .053  .012  .013  .037  .016  .019
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .022 .0132
                                                                                                             -.004
       13 JUNE      3.4  9.3     .021  .033  .018  .017  .017  .014  .016  .020  .016  .011
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .018 .0059
                                                                                                              .046
       28 JUNE      3.8  9.3     .044  .049  .094  .055  .059  .109  .072  .055  .074  .028
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .064 .0240
                                                                                                             -.028
       11 JULY      3.9  9.4     .033  .016  .019  .036  .017  .079  .039  .013  .028  .081
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .036 .0248
                                                                                                             -.009
       25 JULY      4.0  9.5     .029  .029  .028  .031  .027  .028  .023  .028  .032  .017
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .027 .0043
                                                                                                              .055
       10 AUG       4.1  9.7     .061  .046  .074  .061  .170  .090  .114  .093  .035 0.000
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .083 .0409
                                                                                                              .024
       27 AUG       4.4  9.8     .172  .098  .044  .068  .146  .090  .088  .117  .062  .179
                                0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000   .106 .0463

                                 0.0 = NOT RECORDEO

                                 MEASUREMENTS IN GRAMS
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SECTION V

EXCLOSURE STUDIES (PRODUCTION, COVER, AND PRECIPITATION)

1982

Introduction

Studies of vegetation forage production from several exclosures and relic areas of the Big Horn and Wind River Basins were initiated during the 1962 field season. These studies included data from 19 livestock enclosures and one relic area. Research activities have been continued annually since that time to include 43 different exclosures throughout the western half of Wyoming. The objectives of the program are to determine:

(1) the relationship of vegetation production with phenodynamics and environmental data;

(2) the relationship of annual herbage production to area cover percentage;

(3) the influence of different treatments, the environment, and succession on vegetation changes;

(4) the influence of some range improvement practices on herbage production and cover.

Methods and Procedures

Area cover and herbage production studies on sagebrush-grass and juniper sites were conducted on transects of 20 quadrats, 1' x 1', spaced systematically along a randomly located 100' steel tape. On sites dominated by saltbush, a variation of the sampling technique, described in the 1968 results, was used to measure herbage production. Twenty 1' x 10' plots were located systematically along a randomly located 100' steel tape. Each 1' x 10' plot was subsampled for vegetative cover using 10 1' x 1' quadrats.

Area cover of all herbaceous, semi-woody, and woody species was estimated within each square foot plot. Data of shrub crown cover and basal cover of plains pricklypear, Hood's phlox, and Hooker sandwort were not combined when comparing area cover to herbaceous production since this group of plants were not clipped.

Herbage production was determined by clipping herbaceous species at ground or crown level. The clipping procedure was conducted on or near the same date as the previous year for each exclosure. Production field procedures are initiated each year shortly after July 4 on sites dominated by Gardner saltbush, which was treated as a herbaceous species. All new annual growth is clipped at that time for determination of total production. Clipping procedures for measures of grass and forb production are completed by August 22 each year with latest activities at sagebrush-grass exclosures in the Wind River Basin. Clippings were oven-dried at 70°C for 24 hours prior to weighing.

On areas where animal use had occurred prior to clipping, estimations of utilization were made by species. These estimates were made at the time each plot was clipped. The utilization values were averaged by species for the 20 plots and used to adjust production for herbage lost by utilization. Calculated production estimates given in Table III are corrected for utilization and represent total production.

As in 1968 and 1971 up through the present, an estimate of total production was derived for each site by adding the shrubby and mat forming species production to the clipped production. Shrub, mat forming, and pricklypear plant production was obtained by a modified double-sampling technique during September and October. Weight units were estimated on 20 randomly located macro quadrats, 4' x 5', subdivided into six inch squares.

Each macro quadrat was 6-12 steps apart across the study area. Shrubby species larger then six square inches, primarily big sagebrush, were estimated using the six inch square as one weight unit. Mat forming plants and shrubs smaller then six square inches were estimated by weight units of characteristic plant shape and size. Three of these weight units for each species were clipped for weight determination. Each of these units was dried in an oven at 70°C for 96 hours. The average gram weight for the three weight units, multiplied times the total number of estimated units in 20 quadrats, was converted to lbs/acre as an estimate of annual production.

At the same time clipped production data were collected during July and August, pictures of the transects were taken giving a pictorial history from year to year at each study location.

Precipitation data was recorded from metal rain gauges installed at each exclosure. The rain gauge was constructed with a diameter of 2.79 inches so that each 100 milliliters of water recorded in the gauge was equal to one inch of precipitation. Oil was added to each gauge after reading to prevent evaporation. During the winter months antifreeze is added in known amounts to prevent the gauges from freezing and breaking. Precipitation data were collected four times a year -- April 15, July 1, September 1, and October 15. In the Big Horn Basin however moisture in gauges, beginning in 1977, was read seven times during the year: April 15, June 1, July 1, August 1, September 1, October 15. BLM personnel responsible for rangeland inventory and hydrologic interrelationships urged the increased frequency of recording precipitation. A number of new locations were established and small commercial gauges installed on them. The new gauges were located primarily in western Big Horn Basin. The additions serve well to provide information from throughout the Basin.

Results 1982

The production section of the 1982 Annual Report closely follows the format of earlier reports. The new format of the data summary sheets which were revised in 1979 is again utilized. Table I gives an alphabetical listing at study sites, the county name code, the county where each site is located, and the treatments studied at each site. Table II is a list of the names of plants which occur at these sites, their lettered code name, botanical name, life form and longevity. Table III gives sampled utilization by species and estimated production values in lbs per acre for the different sites and treatments. Study areas that are not mentioned exhibited no observable utilization. Tables IV and V each include intratabular table of contents for the data summary sheets from each study site. Table IV includes those which were sampled in the early spring while Table V lists those sampled near the dates of past years in later summer. The data summary sheets follow, giving production and cover data for each treatment on all 43 sites. Forage production is given for each shrub and perennial grass species plus the categories; shrub, perennial grass, annual grass, perennial forbs, annual forbs, annual herbaceous and total production. Forage production is given in both lbs per acre and kgs per hectare. Average percent cover is given for each individual species.

Table I. An alphabetical listing of study areas, the county name code, the county location and the treatments studied at each area.

County Name Code	Study Areas	County	Treatment
2017	Big Trails G.R.I. Exc.	Washakie	Inside Spray Outside Native
1002	Boysen Reservoir Exc.	Fremont	Inside Native Outside Native
2007	Bud Kimball Exc.	Washakie	Inside Native Outside Native Inside Spray Outside Spray
2002	Buffalo Creek Exc.	Washakie	Inside Native Outside Native
2003	Burned Wagon Exc.	Washakie	Inside Native Outside Native
0403	Cedar Mountain Exc.	Sweetwater	Inside Native Outside Native
1501	Cochran Exc.	Hot Springs	Inside Native Outside Native Outside Spray
1901	Cumberland #1 Exc.	Unita	Inside Native Outside Native Inside Spray Outside Spray
1201	Cumberland #2 Exc.	Lincoln	Inside Native Outside Native Inside Spray Outside Spray
1202	Cumberland #2 Exc.	Linclon	Inside Native Outside Native Inside Spray Outside Spray
1901	Cumberland #4 Exc.	Uinta	Inside Native Outside Native
2004	Demer Exc.	Washakie	Inside Native Outside Native
2005	Dutch Nick Exc.	Washakie	Inside Native Outside Native
0404	Farson Exc.	Sweetwater	Inside Native Outside Native
1007	Granite Mountain Exc.	Fremont	Inside Native Outside Native Inside Spray Outside Spray
0901	Halogeton Pasture #1 Exc.	Big Horn	Inside Native
0905	Halogeton Pasture #2 Exc.	Big Horn	Inside Native
0903	Halogeton Pasture #3 Exc.	Big Horn	Inside Native
0910	Halogeton Pasture #6	Big Horn	Outside Graze
0911	Halogeton Pasture #7a	Big Horn	Outside Graze

Table I. (Continued):

County Name Code	Study Areas	County	Treatment
0913	Horse Creek Exc.	Big Horn	Inside AGSM Outside AGSM Inside AGSP Outside AGSP Inside ARNO Outside ARNO
0914	Kane Deer Exc.	Big Horn	Inside Native Outside Native Inside Spray Outside Spray
0921	Kane Deer G.R.I. Exc.	Big Horn	Inside Spray Outside Native
1502	Kirby Creek Exc.	Hot Springs	Inside Native Outside Native
1001	Lander Ant Exc.	Fremont	Inside Native Outside Native
1003	Lower Gov't Draw Exc.	Fremont	Inside Native Outside Native Inside Spray Outside Spray
1004	McGraw Flat Exc.	Fremont	Inside Native Outside Native
0920	Medicine Lodge G.R.I. Exc.	Big Horn	Inside Spray Outside Native
2301	Mesa Antelope Exc.	Sublette	Inside Native Outside Native
1503	North Butte Relic Area	Hot Springs	Relic
0104	Owl Draw Exc.	Natrona	Inside ARNO Outside ARNO Inside ARTR Outside ARTR
0406	Red Wash #2 Exc.	Sweetwater	Inside AGSM Outside AGSM Inside AGSP Outside AGSP
1504	Round Top Relic Area	Hot Springs	Relic
1505	Sand Gulch	Hot Springs	Inside Native Outside Native
1009	Shoshone Ant #2 Exc.	Fremont	Inside Northeast Inside Northwest Inside Southeast Inside Southwest Outside Native
1011	Shoshone Ant #4 Exc.	Fremont	Inside Northeast Inside Northwest Inside Southeast Inside Southwest Outside Native

Table I. (Continued):

County Name Code	Study Areas	County	Treatment
1013	Shoshone Ant #7 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
1014	Shoshone Ant #8 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
1015	Shoshone Ant #9 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
1017	Shoshone Ant #11 Exc.	Fremont	Inside Northeast
			Inside Northwest
			Inside Southeast
			Inside Southwest
			Outside Native
2009	Smilo Exc.	Washakie	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
1005	Sweetwater Exc.	Fremont	Inside ARNO
			Outside ARNO
			Inside ARTR
			Outside ARTR
2010	Two Mile Hill Exc.	Washakie	Inside Native
			Outside Native
1006	Upper Gov't Draw Exc.	Fremont	Inside Native
			Outside Native
			Inside Spray
			Outside Spray
2006	West Pasture Exc.	Washakie	Inside Native
			Outside Native

Table II. List of plant names which occurred in production study areas.

Code	Genus-Species	Common Name	Life Form	Longevity
ACLA	Achillea lanulosa	Western yarrow	Forb	Perennial
AGGL	Agoseris glauca	Pale agoseris	Forb	Perennial
AGCR	Agropyron cristatum	Crested wheatgrass	Grass	Perennial
AGSM	Agropyron smithii	Western wheatgrass	Grass	Perennial
AGSP	Agropyron spicatum	Bluebunch wheatgrass	Grass	Perennial
ALCE	Allium cernuum	Nodding onion	Forb	Perennial
ALTE	Allium textile	Prairie onion	Forb	Perennial
ALL	Allium spp.	Onion	Forb	Perennial
ANOC	Androsace occidentalis	Western rockjasmine	Forb	Annual
ANDI	Antennaria dimorpha	Low pussytoes	Mat-form	Perennial
ANRO	Antennaria rosea	Rose pussytoes	Mat-form	Perennial
ARHO[2]	Arabis holboellii	Holboell rockcress	Forb	Perennial
ARLI	Arabis lignifera	Woody rockcress	Forb	Perennial
ARCO	Arenaria congesta	Ballhead sandwort	Forb	Perennial
ARHO	Arenaria hookeri	Hooker sandwort	Mat-form	Perennial
ARFE	Aristida fendleriana	Fendler threeawn	Grass	Perennial
ARFR	Artemisia frigida	Fringed sagewort	Half-shrub	Perennial
ARLO	Artemisia longiloba	Alkali sagebrush	Shrub	Perennial
ARNO	Artemisia nova	Black sagebrush	Shrub	Perennial
ARPE	Artemisia pedatifida	Birdsfoot sagewort	Half-shrub	Perennial
ARSP	Artemisia spinescens	Bud sagewort	Half-shrub	Perennial
ARTR	Artemisia tridentata	Big sagebrush	Shrub	Perennial
ASDI	Astragalus diversifolius	Meadow milkvetch	Forb	Perennial
ASDR	Astragalus drummondii	Drummond milkvetch	Forb	Perennial
ASMI	Astragalus miser	Timber milkvetch	Forb	Perennial
ASMI[2]	Astragalus missouriensis	Missouri milkvetch	Forb	Perennial
ASPU	Astragalus purshii	Pursh loco	Forb	Perennial
ASSP	Astragalus spatulatus	Tufted milkvetch	Mat-form	Perennial
AST	Astragalus spp.	Milkvetch	Forb	Perennial
ATAR	Atriplex argentea	Silverscale saltbush	Forb	Annual
ATCA	Atriplex canescens	Fourwing saltbush	Shrub	Perennial
ATCO	Atriplex confertifolia	Shadscale	Shrub	Perennial
ATGA	Atriplex gardneri	Gardner saltbush	Half-shrub	Perennial
BASA	Balsamorhiza sagittata	Arrowleaf balsamroot	Forb	Perennial
BOGR	Bouteloua gracilis	Blue grama	Grass	Perennial
BRJA	Bromus japonicus	Japanese chess	Grass	Annual
BRTE	Bromus tectorum	Cheatgrass	Grass	Annual
CAMO	Calamagrostis montanensis	Plains reedgrass	Grass	Perennial
CANU	Calochortus nuttallii	Sego mariposalily	Forb	Perennial
CAMI	Camelina microcarpa	Littlepod falseflax	Forb	Annual
CAEL	Carex eleocharis	Needleleaf sedge	Sedge	Perennial
CAFI	Carex filifolia	Threadleaf sedge	Sedge	Perennial
CACH	Castilleja chromosa	Desert Indian paintbrush	Forb	Perennial
CAAN	Castilleja angustifolia	Narrowleaf Ind.paintbrush	Forb	Perennial
CALI	Castilleja linariaefolia	Wyoming Ind. paintbrush	Forb	Perennial
CEAR	Cerastium arvense	Field chickweed	Forb	Annual
CELA	Ceratoides lanata	Winterfat	Half-shrub	Perennial
CHDO	Chaenactis douglasii	Douglas dustymaiden	Forb	Perennial
CHAL	Chenopodium album	Lambsquarter goosefoot	Forb	Perennial

Table II. (Continued):

Code	Genus-Species	Common Name	Life Form	Longevity
CHDE	Chenopodium dessicatum	Desert goosefoot	Forb	Annual
CHLA	Chenopodium lanceolatum	Lanceleaf goosefoot	Forb	Annual
CHLE	Chenpodium leptophyllum	Narrowleaf goosefoot	Forb	Annual
CHE	Chenopodium spp.	Goosefoot	Forb	Annual
CHNA	Chrysothamnus nauseosus	Rubber rabbitbrush	Shrub	Perennial
CHVI	Chrysothamnus viscidiflorus	Douglas rabbitbrush	Shrub	Perennial
COPA[2]	Collinsia parviflora	Blue-eyed Mary	Forb	Annual
COPA	Comandra pallida	Pale bastardtoadflax	Forb	Perennial
CORA	Cordylanthus ramosus	Bushy birdbeak	Forb	Annual
CRAC	Crepis acuminata	Tapertip hawksbeard	Forb	Perennial
CRMO	Crepis modocensis	Yellowstone hawksbeard	Forb	Perennial
CRBR	Cryptantha bradburiana	Miners candle	Forb	Perennial
CYMO	Cymopterus montanus	Mountain springparsley	Forb	Perennial
DEGE	Delphinium geyeri	Plains larkspur	Forb	Perennial
DEPI	Descurainia pinnata	Pinnate tansymustard	Forb	Annual
DRA	Draba spp.	Draba	Forb	Perennial
ELCI	Elymus cinereus	Basin wildrye	Grass	Perennial
ERCA	Erigeron canadensis	Horseweed fleabane	Forb	Annual
ERCO	Erigeron compositus	Fernleaf fleabane	Forb	Perennial
EROC	Erigeron ochroleucus	Creamy fleabane	Forb	Perennial
ERPU	Erigeron pumilus	Low fleabane	Forb	Perennial
ERI	Erigeron spp.	Fleabane	Forb	Perennial
ERCA[2]	Eriogonum caespitosum	Mat wildbuckwheat	Mat-form	Perennial
ERBR	Eriogonum brevicaule	Shortstem wildbuckwheat	Half-shrub	Perennial
ERCE	Eriogonum cernuum	Nodding wildbuckwheat	Forb	Annual
ERFL	Eriogonum flavum	Yellow wildbuckwheat	Half-shrub	Perennial
ERMI	Eriogonum microthecum	Slenderbrush wildbkwht	Forb	Perennial
EROV	Eriogonum ovalifolium	Cushion wildbuckwheat	Mat-form	Perennial
ERSU	Eriogonum subalpinum	Subalpine wildbuckwheat	Mat-form	Perennial
ERUM	Eriogonum umbellatum	Sulfur wildbuckwheat	Mat-form	Perennial
ERI[2]	Eriogonum spp.	Eriogonum	Mat-form	
ERAS	Erysimum asperum	Plains wallflower	Forb	Perennial
EUSE	Euphorbia serpyllifolia	Thyme leaf spurge	Forb	Annual
FEID	Festuca idahoensis	Idaho fescue	Grass	Perennial
GACO	Gaura coccinea	Scarlet gaura	Forb	Perennial
GICO	Gilia congesta	Ballhead gilia	Forb	Perennial
GIIN	Gilia insignis	Woody gilia	Forb	Perennial
GILE	Gilia leptomeria	Minute flowering gilia	Forb	Annual
GIPU	Gilia pumila	Dwarf gilia	Forb	Annual
GISP	Gilia spicata	Spike gilia	Forb	Perennial
GYPA	Gymnosteris parvula	Leafless false phlox	Forb	Annual
HAGL	Halogeton glomeratus	Halogeton	Forb	Annual
HAAC	Haplopappus acaulis	Stemless goldenweed	Mat-form	Perennial
HEAN	Helianthus annuus	Annual sunflower	Forb	Annual
HOPU	Hordeum pusillum	Little barley	Grass	Annual
JUOS	Juniperus osteosperma	Utah juniper	Shrub-Tree	Perennial
JUSC	Juniperus scopulorum	Rocky Mountain juniper	Shrub-Tree	Perennial
KOAM	Kochia americana	Greenmolly summercypress	Half-shrub	Perennial

Table II. (Continued):

Code	Genus-Species	Common Name	Life Form	Longevity
KOCR	Koeleria cristata	Prairie junegrass	Grass	Perennial
LASE	Lactuca serriola	Prickly lettuce	Forb	Perennial
LAC	Lactuca spp.	Lettuce	Forb	Annual
LARE	Lappula redowskii	Bluebur stickseed	Forb	Annual
LATE	Lappula texana	Texan stickseed	Forb	Annual
LEDE	Lepidium densiflorum	Prairie pepperweed	Forb	Annual
LEPE	Lepidium perfoliatum	Clasping pepperweed	Forb	Annual
LEPU	Leptodactylon pungens	Granite pricklygilia	Half-shrub	Perennial
LEAL	Lesquerella alpina	Alkaline bladderpod	Forb	Perennial
LELU	Lesquerella ludoviciana	Foothill bladderpod	Forb	Perennial
LERE	Lewisia rediviva	Bitterroot lewisia	Forb	Perennial
LILE	Linum lewisii	Lewis flax	Forb	Perennial
LOOR	Lomatium orientale	Eastern lomatium	Forb	Perennial
LOSI	Lomatium simplex	Narrowleaf lomatium	Forb	Perennial
LOM	Lomatium spp.	Lomatium	Forb	Perennial
LUPU	Lupinus pusillus	Rusty lupine	Forb	Annual
MACA	Machaeranthera canescens	Hoary aster	Forb	Perennial
MAGL	Machaeranthera glabriuscula	Alkaline woodyaster	Half-shrub	Perennial
MAGR	Machaeranthera grindeloides	Toothleaf woodyaster	Half-shrub	Perennial
MATA	Machaeranthera tanacetifolia	Tansyleaf aster	Forb	Annual
MAVI	Mamillaria vivipara	Purple ballcactus	Succulent	Perennial
MEAL	Mentzelia albicaulis	Whitestem mentzelia	Forb	Annual
MECI	Mertensia ciliata	Mountain bluebells	Forb	Perennial
MELO	Mertensia longiflora	Small bluebells	Forb	Perennial
MIGR	Microsteris gracilis	Pink microsteris	Forb	Annual
MONU	Monolepis nuttalliana	Nuttall monolepis	Forb	Annual
MUDI	Musineon divaricatum	Leafy musineon	Forb	Perennial
OETR	Oenothera trichocalyx	Pale evening primrose	Forb	Annual
OPPO	Opuntia polyacantha	Plains pricklypear	Succulent	Perennial
ORFA	Orobanche fasciculata	Tufted broomrape	Sapprophyte	Perennial
ORHY	Oryzopsis hymenoides	Indian ricegrass	Grass	Perennial
OXSE	Oxytropis sericea	Silky pointloco	Forb	Perennial
PECL	Penstemon cleburnei	Cleburn penstemon	Forb	Perennial
PEFR	Penstemon fremonti	Fremont penstemon	Forb	Perennial
PELA	Penstemon laricifolius	Larchleaf penstemon	Forb	Perennial
PEN	Penstemon spp.	Penstemon	Forb	Perennial
PHHO	Phlox hoodii	Hood's phlox	Mat-form	Perennial
PHLO	Phlox longifolia	Longleaf phlox	Forb	Perennial
PHMU	Phlox multiflora	Flowery phlox	Mat-form	Perennial
PHAU	Physaria australis	Southern twinpod	Forb	Perennial
PLPA	Plantago patagonica	Wooly Indianwheat	Forb	Annual
POAM	Poa ampla	Big bluegrass	Grass	Perennial
POFE	Poa fendleriana	Muttongrass	Grass	Perennial
POSE	Poa secunda	Sandberg bluegrass	Grass	Perennial
POAV	Polygonum aviculare	Prostrate knotweed	Forb	Annual
POSA	Polygonum sawatchense	Sawatch knotweed	Forb	Annual
PSTE	Psoralea tenuiflora	Slimflower scurfpea	Forb	Perennial

Table II. (Continued):

Code	Genus-Species	Common Name	Life Form	Longevity
PTTE	Pteryxia terebinthina	Fernyparsley	Forb	Perennial
RHTR	Rhus trilobata	Skunkbush sumac	Shrub	Perennial
SAIB	Salsola iberica	Russian thistle	Forb	Annual
SAVE	Sarcobatus vermiculatus	Greasewood	Shrub	Perennial
SECA	Senecio canus	Woolly groundsel	Forb	Perennial
SELA	Sedum lanceolatum	Stonecrop	Succulent	Perennial
SEST	Sedum stenopetalum	Lanceleaf wornleaf	Succulent	Perennial
SIAL	Sisymbrium altissimum	Tumbling hedgemustard	Forb	Annual
SILI	Sisymbrium linifolium	Longleaf hedgemustard	Forb	Perennial
SPCO	Sphaeralcea coccinea	Scarlet globemallow	Forb	Perennial
SPCR	Sporobolus cryptandrus	Sand dropseed	Grass	Perennial
STCO	Stipa comata	Needleandthread	Grass	Perennial
STVI	Stipa viridula	Green needlegrass	Grass	Perennial
SYOC	Symphoricarpos occidentalis	Western snowberry	Shrub	Perennial
SYM	Symphoricarpos spp.	Snowberry	Shrub	Perennial
TAOF	Taraxacum officinale	Common dandelion	Forb	Perennial
TECA	Tetradymia canescens	Gray horsebrush	Shrub	Perennial
TESP	Tetradymia spinosa	Cottonthorn horsebrush	Shrub	Perennial
TRDU	Tragopogon dubius	Yellow salsify	Forb	Biennial
TRGY	Trifolium gymnocarpon	Hollyleaf clover	Forb	Perennial
TRI	Trifolium spp.	Clover	Forb	Perennial
VIAM	Vicia americana	American vetch	Forb	Perennial
VINU	Viola nuttallii	Nuttall violet	Forb	Perennial
VUOC	Vulpia octoflora	Common six-weeks grass	Grass	Annual
XASA	Xanthocephalum sarothrae	Broom snakeweed	Half-shrub	Perennial
ZIVE	Zigadenus venenosus	Meadow deathcamas	Forb	Perennial

Table III. Utilization occurring prior to clipping.

Exclosure	Treatment	Species	% Utilization	Production lbs/acre
Cedar Mountain	Out Native	POSE	10.6	6.12
Cochran	Out Native	AGSM	1.5	2.16
		POSE	5.6	1.58
				3.74
	Out Spray	AGSM	11.4	11.18
		POSE	2.7	1.39
		STCO	27.1	10.00
				22.57
Cumberland 1	Out Native	AGSM	7.3	7.05
		POSE	27.5	5.52
				12.57
	Out Spray	AGSM	5.0	2.69
		POSE	21.4	4.93
				7.62
Cumberland 2	Out Spray	AGSM	6.6	4.85
		POSE	21.9	5.46
				10.31
Cumberland 4	In Native	AGSM	1.0	.38
	Out Native	AGSM	3.3	9.27
		SIHY	15.4	4.78
				14.05
Dutch Nick	In Native	BOGR	1.2	.50
		ORHY	20.0	129.52
				130.02
	Out Native	BOGR	1.3	1.53
Farson	In Native	AGSM	5.4	.15
		CAEL	70.0	8.63
				8.78
Horse Creek	Out AGSP	AGSP	15.3	11.73
		POSE	3.3	.96
				12.69
Kirby Creek*	In Native	AGSM	11.5	11.06
Lander Ant	In Native	AGSM	8.1	.36
		POSE	3.3	1.92
				2.28

Table III. (Continued):

Exclosure	Treatment	Species	% Utilization	Production lbs/acre
Medicine Lodge	In Spray	AGSP	3.3	.96
		POSE	20.0	6.24
		STCO	5.0	6.91
				14.11
	Out Native	POSE	3.0	14.97
		STCO	7.5	1.44
				16.41
Mesa Antelope	Out Native	AGSM	11.9	8.05
Owl Draw	Out ARNO	AGSM	4.5	2.06
	Out ARTR	POSE	3.4	.91
Shoshoni 7	In NW	AGSM	5.0	.58
Sweetwater	Out ARTR	STCO	2.9	4.25
Upper Government	Out Spray	KOCR	7.7	1.48

* Utilization at Kirby Creek resulted from heavy hailstorm on June 22.

Table IV. Vegetation cover data, precipitation and herbage production data alphabetically by exclosure for the 1982 early spring sampling date.

Exclosure	Treatment	Page
Bud Kimball	In Native	112
Cedar Mountain	In Native	113
Cumberland #3	In Native	114
Demer	In Native	115
Farson	In Native	116
Horse Creek	In AGSM	117
Horse Creek	In ARSP	118
Mesa Antelope	In Native	119
Owl Draw	In ARNO	120
Owl Draw	In ARTR	121
Red Wash #2	In AGSM	122
Red Wash #2	In AGSP	123
Shoshoni #7	In Native	124
Sweetwater	In ARNO	125
Sweetwater	In ARTR	126
Upper Government	In Native	127

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   2007.   BUD KIMBAL     18 MAY          1982      IN NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1    TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.   WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                   AREAA   BASE            RENCES
                           20
*********************************************************************
    6  SHRUBS
         ARTR     16.51     13.
         OPPO       .34      3.
         PHHO       .90      3.
    3  PER GRASS
         AGSM       .49     16.   6.70     .34     .69   32.17    36.06
         POSA      1.80     15.  10.07     .50     .28   48.35    54.20
                   TOTAL PERENNIAL GRASS PRODUCTION =    80.52    90.26
    2  PER FORBS
         CACH       .28      5.
         LERE       .06      5.
         LOOM       .02      3.
         MACA       .02      3.
         MUDI       .02      3.
              PERENNIAL FORBS =   7.53     .38     .98   36.15    40.52
    5  ANN GRASS
         BRTE       .01      1.
                ANNUAL GRASSES =   .06     .00     .60     .28      .31
    4  ANN FORBS
         LARE       .01      2.
                  ANNUAL FORBS =   .06     .00     .30     .28      .31

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 117.23   131.41


    PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                       AND WOODY MAT FORM PLANTS
  ********************             ********************************
   OCT 15 TO APR 15 =  3.85          ARTR          422.27   473.36
   APR 15 TO JULY 1 =  3.90          OPPO            8.43     9.45
   JULY 1 TO SEPT 1 =   .80          PHHO           26.33    29.52
   SEPT 1 TO OCT 15 =  2.80
   SEASON TOTAL     = 11.35
   LONG TERM AVERAGE=  9.35

                         TOTAL SHRUB PRODUCTION =  457.04   512.34


                              TOTAL PRODUCTION =  574.27   643.75
                              ********************************
  403.   CEDAR MTN      20 MAY          1982      IN NATIVE

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREAA   BASE             RENCES
                          20
***********************************************************************
   6  SHRUBS
        ARSP       .20      2.
        ARTR      8.75      3.
        ATCO       .15      1.
        KOAM       .30      4.
        TENU       .35      2.
   3  PER GRASS
        AGSM       .07      4.     .36      .02      .29    1.82     2.04
        AGSP      1.76      4.   19.83      .99      .56   95.21   106.73
        POSE       .50      3.    3.71      .19      .37   17.81    19.97
        SIHY       .28      3.    2.29      .11      .42   10.99    12.32
                  TOTAL PERENNIAL GRASS PRODUCTION = 125.83   141.06
   2  PER FORBS
        PHLO       .27     10.
              PERENNIAL FORBS =   1.11      .06      .21    5.32     5.96

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 131.15   147.02


   PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   *********************             ********************************
    OCT 15 TO APR 15 =   3.35          ARTR            156.52   175.46
    APR 15 TO JULY 1 =   5.35          ATCA              5.42     6.07
    JULY 1 TO SEPT 1 =   1.40          CHVI              3.95     4.43
    SEPT 1 TO OCT 15 =   2.25          PHHO              1.38     1.55
    SEASON TOTAL     =  12.35          TECA              2.14     2.40
    LONG TERM AVERAGE=  10.01

                          TOTAL SHRUB PRODUCTION =  169.42   189.92


                               TOTAL PRODUCTION =  300.57   336.94
                               ******************************
   1202.   CUMBER 3      30JUNE         1982      IN NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREAA   BASE             RENCES
                           20
***********************************************************************
   6  SHRUBS
        ARTR     13.80     10.
        CHVI      3.48      9.
        ERMI      2.00      2.
        PHHO       .50      2.
        SYOC      1.00      1.
   3  PER GRASS
        AGSM       .90     14.   11.02      .55      .62   52.91    59.31
        AGSP       .05      1.    1.27      .06     1.27    6.09     6.83
        KOCR       .09      2.     .85      .04      .47    4.08     4.57
        POFE       .03      1.     .63      .03     1.26    3.02     3.39
        POSE      1.58     11.   14.68      .73      .47   70.46    79.01
        STCO       .85      8.    5.44      .27      .32   26.12    29.28
                   TOTAL PERENNIAL GRASS PRODUCTION = 162.70   182.39
   2  PER FORBS
        AGGL       .13     11.
        ANRO       .32      7.
        ARHO2      .02      3.
        CANU       .05      5.
        CALI       .01      1.
        LOOR       .02      3.
        PECL       .01      1.
        PHLO       .53     15.
        TRGY      1.51     18.
             PERENNIAL FORBS =    0.00     0.00     0.00     0.00     0.00

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 162.70   182.39


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    *********************                *********************************
     OCT 15 TO APR 15 =   8.83             ARTR              360.43  404.04
     APR 15 TO JULY 1 =   1.82             CHVI               45.80   51.34
     JULY 1 TO SEPT 1 =   5.21             ERMI                1.43    1.60
     SEPT 1 TO OCT 15 =   5.35             PHHO                8.44    9.46
     SEASON TOTAL     =  21.21             TECA                 .86     .97
     LONG TERM AVERAGE=  11.44

                              TOTAL SHRUB PRODUCTION =   416.96  467.41


                                    TOTAL PRODUCTION =   579.66  649.79
                                    **********************************
   2004.   DEMER         18 MAY        1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS    KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER    PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREAA  BASE           RENCES
                        20
************************************************************************
   6  SHRUBS
        ARTR     13.85     9.
   3  PER GRASS
        AGSM       .67    19.  10.29     .51     .77  49.40    55.38
        AGSP       .08     1.   1.05     .05     .70   5.04     5.65
        BOGR       .55     5.   2.04     .10     .19   9.79    10.97
        POSE       .89    12.   6.75     .34     .38  32.41    36.33
                 TOTAL PERENNIAL GRASS PRODUCTION =   96.64   108.33
   5  ANN GRASS
        BRTE       .04     3.
              ANNUAL GRASSES =     .44     .02     .55   2.11     2.37

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   98.75   110.70


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    *********************               *********************************
     OCT 15 TO APR 15 =  2.60             ARTR           325.61   365.01
     APR 15 TO JULY 1 =  3.35             OPPO            23.78    26.66
     JULY 1 TO SEPT 1 =  1.60
     SEPT 1 TO OCT 15 =  3.20
     SEASON TOTAL     = 10.95
     LONG TERM AVERAGE=  8.64

                          TOTAL SHRUB PRODUCTION =  349.40   391.67


                                TOTAL PRODUCTION =  448.15   502.37
                                **********************************
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  2004.   FARSON         19 MAY         1982      IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                   AREAA  BASE             RENCES
                          20
*******************************************************************************
   6  SHRUBS
        ARTR     17.50    12.
        CHVI       .25     1.
   3  PER GRASS
        AGSM       .65    19.    6.04     .30     .46  29.00    32.51
        ORHY       .48     4.    3.73     .19     .39  17.91    20.08
                   TOTAL PERENNIAL GRASS PRODUCTION =  46.91    52.59

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  46.91    52.59


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   ********************               *********************************
    OCT 15 TO APR 15 =  1.98            ARTR            125.29  140.46
    APR 15 TO JULY 1 =  1.55            CELA               .78     .87
    JULY 1 TO SEPT 1 =  1.25            CHVI              1.51    1.69
    SEPT 1 TO OCT 15 =  2.97            PHHO              5.13    5.76
    SEASON TOTAL     =  7.75
    LONG TERM AVERAGE=  6.69

                            TOTAL SHRUB PRODUCTION =  132.71  148.77


                                  TOTAL PRODUCTION =  179.62  201.36
                                  **********************************
    913.   HORSE CR      18 MAY        1982     IN AGSM

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREAA  BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      7.50     8.
         CHVI       .25     1.
         PHHO       .25     1.
    3  PER GRASS
         AGSM      3.48    20.  48.37   2.42    .70 232.25  260.35
         POSE       .96     7.   3.88    .19    .20  18.63   20.88
                 TOTAL PERENNIAL GRASS PRODUCTION = 250.88  281.24
    2  PER FORBS
         CACH       .06     2.
             PERENNIAL FORBS =    .29    .01    .26   1.39    1.56
    5  ANN GRASS
         BRTE       .17    12.
              ANNUAL GRASSES =   1.63    .08    .48   7.82    8.77
    4  ANN FORBS
         DEPI       .04     7.
                ANNUAL FORBS =    .30    .02    .38   1.44    1.61

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 261.53  293.18


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    *********************           *********************************
     OCT 15 TO APR 15 =  4.08         ARTR          171.13  191.84
     APR 15 TO JULY 1 =  4.36         OPPO           19.06   21.36
     JULY 1 TO SEPT 1 =  1.58         PHHO            2.41    2.70
     SEPT 1 TO OCT 15 =  3.80
     SEASON TOTAL     = 13.82
     LONG TERM AVERAGE= 11.23

                          TOTAL SHRUB PRODUCTION =  192.60  215.90


                                TOTAL PRODUCTION =  454.13  509.08
                                **********************************
    913.   HORSE CK      18 MAY        1982     IN AGSP

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREAA  BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR      1.60      4.
         PHHO       .35      2.
    3  PER GRASS
         AGSM       .26     13.   6.87    .34   1.32  32.98   36.97
         AGSP      3.95     18.  59.83   2.99    .76 287.28  322.04
         POSE       .28      5.   2.77    .14    .50  13.30   14.91
                 TOTAL PERENNIAL GRASS PRODUCTION = 333.56   373.92
    2  PER FORBS
         CRAC       .01      1.
         LOOM       .01      1.
             PERENNIAL FORBS =     .53    .03   1.77   2.54    2.85
    4  ANN FORBS
         DEPI       .04      7.
                ANNUAL FORBS =     .17    .01    .24    .81     .91

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 336.91   377.68


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    *********************             *********************************
     OCT 15 TO APR 15 =  4.08         ARTR            96.50  108.18
     APR 15 TO JULY 1 =  4.36         OPPO            18.43   20.66
     JULY 1 TO SEPT 1 =  1.58         PHHO             1.44    1.61
     SEPT 1 TO OCT 15 =  3.80         XASA            24.58   27.56
     SEASON TOTAL     = 13.82
     LONG TERM AVERAGE= 11.23

                          TOTAL SHRUB PRODUCTION =   140.95  158.00


                                TOTAL PRODUCTION =   477.86  535.68
                                ***********************************
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  2301.    MESA ANTEL     19 MAY          1982      IN NATIVE

                        NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREAA   BASE             RENCES
                           20
***********************************************************************
    6  SHRUBS
          ARTR      19.30     13.
          CHVI        .75      4.
          ERCA        .75      1.
          EROV        .09      3.
          PHHO       1.41     12.
    3  PER GRASS
          AGSM       1.28     18.    3.49     .17     .14   16.75    18.78
          POSE        .38      4.    1.08     .05     .14    5.18     5.81
                   TOTAL PERENNIAL GRASS PRODUCTION =       21.93    24.58
    2  PER FORBS
          TRGY        .04      3.
              PERENNIAL FORBS =        .46     .02     .66    2.20     2.47

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            24.13    27.05


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                           AND WOODY MAT FORM PLANTS
    *********************                 ********************************
     OCT 15 TO APR 15 =   3.30              ARTR              95.30  106.83
     APR 15 TO JULY 1 =   2.40              CHVI               2.73    3.06
     JULY 1 TO SEPT 1 =   2.61              ERCA               9.03   10.13
     SEPT 1 TO OCT 15 =   4.17              EROV                .13     .15
     SEASON TOTAL     =  12.48              PHHO              17.69   19.83
     LONG TERM AVERAGE=   8.15

                               TOTAL SHRUB PRODUCTION =  124.88  139.99


                                     TOTAL PRODUCTION =  149.01  167.04
                                     **********************************
     104.   OWL DRAW      17 MAY          1982      IN ARNO

                           NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREAA   BASE             RENCES
                           20
**************************************************************************
     6  SHRUBS
          ARHO        .08      1.
          ARNO      10.10     16.
          PHHO        .84      8.
     3  PER GRASS
          AGSM        .37      9.    2.31     .12     .32   11.09    12.43
          AGSP        .64      9.    4.61     .23     .36   22.13    24.81
          POSE       1.62     13.    7.39     .37     .23   35.48    39.77
                   TOTAL PERENNIAL GRASS PRODUCTION =       68.70    77.01
     2  PER FORBS
          AGGL        .10      9.
          ALTE        .02      1.
          ANRO        .11      3.
          ASDI        .01      1.
          ASMI        .02      3.
          ASPU        .02      1.
          CANU        .19      6.
          CRAC        .05      4.
          DOCO        .02      1.
          LOOR        .02      3.
          MELO        .03      3.
          PECL        .04      3.
          SEST        .21      2.
          TRGY        .02      2.
               PERENNIAL FORBS =   11.43     .57      .70   54.88    61.52

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       123.58   138.53


     PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    *********************               **********************************
     OCT 15 TO APR 15 =   3.20            ARHO                2.58     2.90
     APR 15 TO JULY 1 =   4.08            ARNO              408.85   458.32
     JULY 1 TO SEPT 1 =   1.60            CHVI                 .45      .50
     SEPT 1 TO OCT 15 =   1.62            HAAC                1.79     2.01
     SEASON TOTAL     =  10.50            MAVI                 .10      .11
     LONG TERM AVERAGE=   9.71            PHHO                7.86     8.81

                                TOTAL SHRUB PRODUCTION =  421.63   472.64


                                      TOTAL PRODUCTION =  545.21   611.18
                                      **********************************
```

```
  104.   OWL DRAW      17 MAY         1982      IN ARTR

                    NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./   LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT    PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREAA  BASE            RENCES
                        20
*****************************************************************************
   6  SHRUBS
        ARTR      18.80     16.
        PHHO       5.30     13.
   3  PER GRASS
        AGSM        .43     13.     4.70     .24     .55   22.56    25.29
        AGSP        .11      1.     2.68     .13    1.28   12.86    14.42
        CAFI        .01      1.      .19     .01    1.90     .91     1.02
        KOCR        .05      1.      .22     .01     .22    1.05     1.18
        POSE       2.01     19.     6.27     .31     .16   30.10    33.74
                 TOTAL PERENNIAL GRASS PRODUCTION =        67.48    75.65
   2  PER FORBS
        AGGL        .13      8.
        ALTE        .01      1.
        ANRO        .09      3.
        AST         .01      1.
        CANU        .18     17.
        CRAC        .37     13.
        DOCO        .05      1.
        LERE        .33      5.
        LOCR        .02      2.
        PECL        .07      1.
        SEST        .05      1.
        TRGY        .20     12.
            PERENNIAL FORBS =  15.86     .79     .53   76.15    85.36

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 143.63   161.01



     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   ********************                *******************************
    OCT 15 TO APR 15 =   3.20            ARTR              260.05  291.52
    APR 15 TO JULY 1 =   4.08            CELA                 .10     .11
    JULY 1 TO SEPT 1 =   1.60            CHVI                 .04     .04
    SEPT 1 TO OCT 15 =   1.62            MAVI                 .10     .11
    SEASON TOTAL     =  10.50            OPPO                 .30     .34
    LONG TERM AVERAGE=   9.71            PHHO                7.27    8.15

                           TOTAL SHRUB PRODUCTION =  267.86  300.27


                                 TOTAL PRODUCTION =  411.49  461.28
                                 ********************************
    406.   RED WASH 2     20 MAY          1982      IN AGSM

                         NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
 PLANT     PLANT     AVE.     1X1       TOTAL     AVE.      WGT./     LBS     KGS
 CODE      NAME      PER-     ABS.      WGT.      WGT.      UNIT      PER     PER
                     CENT     PLOT      GMS/20    /PLOT     COVER     ACRE    HA.
                     COVER    FREQ.     SQ.FT.    OCCUR-    AREA
                     AREAA    BASE                RENCES
                              20
***********************************************************************************
    6  SHRUBS
         ARTR      8.25       4.
         CHVI       .10       1.
         ERBR       .06       2.
         EROV       .10       1.
         OPPO       .03       1.
         PHHO       .35       4.
         TECA       .80       3.
    3  PER GRASS
         AGSM       .85      15.      5.86       .29       .34    28.13    31.53
         POSE       .02       1.       .06       .00       .20      .28      .31
         SIHY       .15       2.      1.35       .07       .45     6.48     7.26
         STCO       .70      10.      9.66       .48       .69    46.38    51.99
                    TOTAL PERENNIAL GRASS PRODUCTION =           81.27    91.10
    2  PER FORBS
         ASPU       .03       1.
         CHDO       .05       1.
         ERAS       .02       1.
         PECL       .14       3.
         SYAL       .01       1.
         UNK        .01       1.
                PERENNIAL FORBS =     2.65       .13       .55    12.72    14.26

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =              93.99   105.36


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    *********************               **********************************
     OCT 15 TO APR 15 =  2.80             ARTR                164.73  184.66
     APR 15 TO JULY 1 =  1.10             CHNA                   .28     .31
     JULY 1 TO SEPT 1 =  2.19             CHVI                  4.80    5.39
     SEPT 1 TO OCT 15 =  2.30             EROV                  1.06    1.19
     SEASON TOTAL     =  8.39             PHHO                  8.79    9.86
     LONG TERM AVERAGE=  7.18             TECA                  2.43    2.72

                              TOTAL SHRUB PRODUCTION =  182.09  204.12


                                    TOTAL PRODUCTION =  276.08  309.49
                                    **********************************
```

```
   406.   RED WASH 2    20 MAY         1982      IN AGSP

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREAA   BASE             RENCES
                           20
***********************************************************************
   6   SHRUBS
         ARTR        3.25       2.
         CHNA         .25       1.
         CHVI        1.80       5.
         ERMI         .45       3.
         EROV         .10       2.
         OPPO         .01       1.
         PHHO         .22       3.
         TECA         .55       3.
   3   PER GRASS
         AGSM         .24      10.     2.15      .11      .46   10.32    11.57
         AGSP         .85       5.     4.17      .21      .25   20.02    22.44
         SIHY         .08       1.     1.49      .07      .99    7.15     8.02
         STCO         .71      10.     6.78      .34      .48   32.55    36.49
                  TOTAL PERENNIAL GRASS PRODUCTION =            70.04    78.51
   2   PER FORBS
         CHDO         .03       1.
         ERAS         .03       1.
         PECL         .25       2.
              PERENNIAL FORBS =        2.22      .11      .37   10.65    11.94

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =              80.69    90.45


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   *********************              **********************************
    OCT 15 TO APR 15 =  2.80            ARTR               55.37    62.07
    APR 15 TO JULY 1 =  1.10            CHNA                 .14      .16
    JULY 1 TO SEPT 1 =  2.19            CHVI                6.37     7.14
    SEPT 1 TO OCT 15 =  2.30            EROV                 .25      .28
    SEASON TOTAL     =  8.39            PHHO               12.75    14.29
    LONG TERM AVERAGE=  7.18            TECA                1.68     1.89

                            TOTAL SHRUB PRODUCTION =        76.57    85.83


                                 TOTAL PRODUCTION =  157.26  176.28
                                 ***********************************
   1003.   SHOSHONI 7 · 17 MAY        1982      IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREAA  BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR     18.50     12.
         OPPO       .01      1.
         PHHO       .38      4.
    3  PER GRASS
         AGSM       .07      5.     .50    .03    .36   2.40    2.69
         BOGR       .20      2.     .51    .03    .13   2.44    2.74
         POSE       .54     13.    2.02    .10    .19   9.69   10.86
                 TOTAL PERENNIAL GRASS PRODUCTION =  14.53   16.29
    2  PER FORBS
         MACA       .02      1.
             PERENNIAL FORBS =    .12    .01    .40    .57     .64

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  15.10   16.93


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    *********************           *********************************
     OCT 15 TO APR 15 =  1.55         ARTR          287.66  322.47
     APR 15 TO JULY 1 =  2.89         OPPO           15.05   16.87
     JULY 1 TO SEPT 1 =   .88         PHHO            8.21    9.20
     SEPT 1 TO OCT 15 =  2.92
     SEASON TOTAL     =  8.24
     LONG TERM AVERAGE=  8.42

                          TOTAL SHRUB PRODUCTION =  310.92  348.54


                                TOTAL PRODUCTION =  326.02  365.46
                                **********************************
```

```
  1005.   SWEETWATER    19 MAY          1982      IN ARNO

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREAA   BASE             RENCES
                           20
************************************************************************
    6  SHRUBS
         ARNO       2.82      6.
         CHVI       2.90      2.
         EROV        .15      1.
         OPPO        .05      1.
         PHHO        .45      3.
         TECA       1.95      4.
    3  PER GRASS
         AGSM        .50     12.    3.41     .17      .34   16.37    18.35
         CAFI       1.19      7.    8.24     .41      .35   39.56    44.35
         KOCR        .55      5.    2.01     .10      .18    9.65    10.82
         ORHY        .28      2.    1.59     .08      .29    7.63     8.55
         POSE        .08      1.     .44     .02      .29    2.11     2.37
         STCO       1.26     11.    5.10     .26      .20   24.48    27.44
                  TOTAL PERENNIAL GRASS PRODUCTION =        99.80   111.88
    2  PER FORBS
         COPA        .32     18.
         LOOR        .02      4.
         VINU        .01      1.
              PERENNIAL FORBS =     4.02     .20      .58   19.30    21.64

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   119.10   133.51


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
   *********************                 ********************************
    OCT 15 TO APR 15 =  1.75               ARHO                .17      .19
    APR 15 TO JULY 1 =  2.66               ARNO              56.90    63.78
    JULY 1 TO SEPT 1 =   .80               ARTR                .35      .39
    SEPT 1 TO OCT 15 =  2.70               ASSP               6.87     7.70
    SEASON TOTAL     =  7.91               CHVI                .53      .59
    LONG TERM AVERAGE=  8.80               EROV               1.17     1.31
                                           LEPU               1.76     1.97
                                           OPPO               1.40     1.57
                                           PHHO              12.47    13.98
                                           TECA               3.79     4.25

                              TOTAL SHRUB PRODUCTION =       85.40    95.73


                                   TOTAL PRODUCTION =   204.50   229.24
                                   *********************************
   1005.  SWEETWATER   19 MAY        1982     IN ARTR

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
 PLANT   PLANT  AVE.   1X1    TOTAL   AVE.   WGT./  LBS    KGS
 CODE    NAME   PER-   ABS.   WGT.    WGT.   UNIT   PER    PER
                CENT   PLOT   GMS/20  /PLOT  COVER  ACRE   HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREAA  BASE           RENCES
                       20
**********************************************************************
    6  SHRUBS
         ARTR     7.45    5.
         CHVI      .06    3.
         CPPO      .02    1.
         PHHO     1.30    6.
    3  PER GRASS
         AGSM      .40   18.    3.38    .17    .43  16.22   18.16
         CAFI     1.12    6.    9.84    .49    .44  47.24   52.96
         KOCR     1.40   11.    5.58    .28    .20  26.79   30.03
         POSE      .13    3.    3.26    .16   1.25  15.65   17.54
         STCO      .26    5.    1.54    .08    .30   7.39    8.28
                TOTAL PERENNIAL GRASS PRODUCTION = 113.29  127.00
    2  PER FORBS
         ALTE      .01    1.
         ASMI      .40    2.
         COPA      .02    2.
         CYMO      .05    1.
         SPCO      .04    4.
             PERENNIAL FORBS =  4.89    .24    .48  23.48   26.32

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 136.77  153.32


      PRECIPITATION DATA           PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                   AND WOODY MAT FORM PLANTS
    *********************          *********************************
     OCT 15 TO APR 15 =  1.75        ARFR             .39     .44
     APR 15 TO JULY 1 =  2.66        ARTR          100.64  112.81
     JULY 1 TO SEPT 1 =   .80        CELA             .21     .24
     SEPT 1 TO OCT 15 =  2.70        CHVI            5.74    6.44
     SEASON TOTAL     =  7.91        LEPU             .88     .98
     LONG TERM AVERAGE=  8.80        OPPO             .42     .47
                                     PHHO           15.13   16.96

                          TOTAL SHRUB PRODUCTION =  123.41  138.34


                               TOTAL PRODUCTION =  260.18  291.66
                               **********************************
   1006.  UPPER GOVT    19 MAY       1982     IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
 PLANT  PLANT   AVE.   1X1    TOTAL  AVE.   WGT./  LBS   KGS
 CODE   NAME    PER-   ABS.   WGT.   WGT.   UNIT   PER   PER
                CENT   PLOT   GMS/20 /PLOT  COVER  ACRE  HA.
                COVER  FREQ.  SQ.FT. OCCUR- AREA
                AREAA  BASE          RENCES
                       20
********************************************************************
    6  SHRUBS
        ARTR     11.45     9.
        OPPO       .01     1.
        PHHO       .37     8.
    3  PER GRASS
        AGSM       .31    16.   1.74    .09    .28   8.35   9.36
        KOCR      1.22    13.  10.38    .52    .43  49.64  55.87
        POSE      1.12    16.   5.92    .30    .26  28.42  31.86
                TOTAL PERENNIAL GRASS PRODUCTION = 86.61  97.09
    2  PER FORBS
        CRAC       .01     1.
        LOOR       .01     1.
            PERENNIAL FORBS =    .13    .01    .65    .62    .70

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 87.23  97.78


     PRECIPITATION DATA           PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                   AND WOODY MAT FORM PLANTS
   ********************           **********************************
    OCT 15 TO APR 15 =  1.71        ARTR          256.34  287.36
    APR 15 TO JULY 1 =  3.10        OPPO            1.76    1.97
    JULY 1 TO SEPT 1 =   .90        PHHO           10.94   12.26
    SEPT 1 TO OCT 15 =  2.50
    SEASON TOTAL     =  8.21
    LONG TERM AVERAGE=  9.21

                        TOTAL SHRUB PRODUCTION =  269.04  301.60


                              TOTAL PRODUCTION =  356.27  399.38
                              *********************************
```

Table V. Vegetation cover data, precipitation and herbage production data alphabetically by exclosure, grazing treatment and shrub control treatment for summer 1982.

Exclosure	Page
Big Trails GRI	129
Boysen	131
Bud Kimball	133
Buffalo Creek	137
Burnt Wagon	139
Cedar Mountain	141
Cochran	143
Cumberland #1	146
Cumberland #2	150
Cumberland #3	154
Cumberland #4	158
Demer	160
Dutch Nick	162
Farson	164
Granite Mountain	166
Halogeton Exc. #1	170
Halogeton Exc. #2	171
Halogeton Exc. #3	172
Halogeton Pasture #6	173
Halogeton Pasture #7a	174
Horse Creek	175
Kane Deer	179
Kane GRI	183
Kirby Creek	185
Lander Ant	187
Lower Government Draw	189
McGraw Flats	193
Medicine Lodge GRI	195
Mesa Antelope	197
North Butte Relic	199
Owl Draw	200
Red Wash #2	204
Round Top Relic	208
Sand Gulch	209
Shoshoni Ant #2	211
Shoshoni Ant #4	216
Shoshoni Ant #7	221
Shoshoni Ant #8	226
Shoshoni Ant #9	231
Shoshoni Ant #11	237
Smilo	241
Sweetwater	245
Two Mile Hill	249
Upper Government Draw	251
West Pasture	255

```
 2017.   BIG TRAILS     23JULY          1982      IN SPRAY

                      NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*************************************************************************
   6  SHRUBS
        ARTR        .75      1.
   3  PER GRASS
        AGSP        .02      1.     .90     .05    2.25    4.32     4.84
        STCO        .04      1.     .34     .02     .49    1.63     1.83
                  TOTAL PERENNIAL GRASS PRODUCTION =       5.95     6.67
   2  PER FORBS
        LASE        .02      2.
              PERENNIAL FORBS =     .14     .01     .47     .67      .75
   5  ANN GRASS
        BRTE       2.16     19.
        VUOC        .02      2.
                ANNUAL GRASSES =  48.05    2.40    1.11  230.72   258.64
   4  ANN FORBS
        DEPI        .01      1.
        EUSE        .04      3.
        PLPA        .01      2.
                  ANNUAL FORBS =    .24     .01     .24    1.15     1.29

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 238.49  267.35


   PRECIPITATION DATA
   RAIN GAUGE
 *************************
   OCT 15 TO APR 15 =  6.25
   APR 15 TO JULY 1 =  4.84
   JULY 1 TO SEPT 1 =  2.29
   SEPT 1 TO OCT 15 =  4.32
   SEASON TOTAL     = 17.70
   LONG TERM AVERAGE= 13.29
   2017.   BIG TRAILS    23 JULY       1982     OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR       .15     1.
         JUCS      3.50     2.
    3  PER GRASS
         POSE       .03     1.    .11    .01    .22    .52     .58
                 TOTAL PERENNIAL GRASS PRODUCTION =    .52     .58
    4  ANN FORBS
         DEPI       .04     6.
         LARE       .06     8.
         AF        0.00     0.
    5  ANN GRASS
         BRTE       .68    18.
              ANNUAL GRASSES =  28.83   1.44   2.14 138.43  155.18
    4  ANN FORBS
         DEPI       .04     6.
         LARE       .06     8.
                ANNUAL FORBS =   1.11    .06    .62   5.32    5.96

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 149.59  167.69


     PRECIPITATION DATA
     RAIN GAUGE
   **************************
     OCT 15 TO APR 15 =  6.25
     APR 15 TO JULY 1 =  4.84
     JULY 1 TO SEPT 1 =  2.29
     SEPT 1 TO OCT 15 =  4.32
     SEASON TOTAL      = 17.70
     LONG TERM AVERAGE= 13.29
```

```
  1002.   BOYSEN         14 JULY        1982      IN NATIVE

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT    PLANT    AVE.     1X1     TOTAL     AVE.     WGT./    LBS     KGS
 CODE     NAME     PER-     ABS.    WGT.      WGT.     UNIT     PER     PER
                   CENT     PLOT    GMS/20    /PLOT    COVER    ACRE    HA.
                   COVER    FREQ.   SQ.FT.    OCCUR-   AREA
                   AREA     BASE              RENCES
                            20
**********************************************************************
    3  PER GRASS
         BOGR       1.58     13.   10.13      .51      .32   48.64    54.53
                   TOTAL PERENNIAL GRASS PRODUCTION =        48.64    54.53
    2  PER FORBS
         SPCO        .19     11.
               PERENNIAL FORBS =     3.32      .17      .90   15.94    17.87

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         64.58    72.39


     PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                            AND WOODY MAT FORM PLANTS
   *************************               ***********************************
    OCT 15 TO APR 15 =    .92                OPPO                11.40    12.78
    APR 15 TO JULY 1 =   2.10
    JULY 1 TO SEPT 1 =   1.30
    SEPT 1 TO OCT 15 =   1.19
    SEASON TOTAL     =   5.51
    LONG TERM AVERAGE=   5.14

                              TOTAL SHRUB PRODUCTION =       11.40    12.78


                                    TOTAL PRODUCTION =       75.98    85.18
                                    ***********************************
   1002.   BOYSEN        14 JULY        1982     OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
  PLANT    PLANT    AVE.    1X1    TOTAL    AVE.    WGT./    LBS    KGS
  CODE     NAME     PER-    ABS.   WGT.     WGT.    UNIT     PER    PER
                    CENT    PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                    COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                    AREA    BASE            RENCES
                            20
***********************************************************************
     6  SHRUBS
          OPPO       .01     1.
     3  PER GRASS
          BOGR      3.66    19.  12.80     .64     .18  61.46    68.90
                    TOTAL PERENNIAL GRASS PRODUCTION =  61.46    68.90
     2  PER FORBS
          SPCO       .05     3.
                PERENNIAL FORBS =     .18     .01     .20    .86     .96

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  62.32    69.86


      PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    ***************************          ***********************************
     OCT 15 TO APR 15 =    .92             ATCO              17.15    19.23
     APR 15 TO JULY 1 =   2.10             OPPO              32.12    36.01
     JULY 1 TO SEPT 1 =   1.30
     SEPT 1 TO OCT 15 =   1.19
     SEASON TOTAL     =   5.51
     LONG TERM AVERAGE=   5.14

                              TOTAL SHRUB PRODUCTION =   49.27    55.23


                                    TOTAL PRODUCTION =  111.59   125.09
                                    **********************************
   2007.   BUD KIMBAL    25 JUNE        1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL    AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.     WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20   /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.   OCCUR- AREA
                 AREA   BASE            RENCES
                        20
*************************************************************************
    6  SHRUBS
         ARTR     15.77   14.
         OPPO       .17    5.
         PHHO       .55    4.
    3  PER GRASS
         AGSM       .28   13.   6.18    .31   1.12  29.67   33.26
         POSE      2.03   18.  12.01    .60    .30  57.66   64.64
                 TOTAL PERENNIAL GRASS PRODUCTION =  87.33   97.90
    2  PER FORBS
         CACH       .39    5.
         ERPU       .35    5.
         LERE       .23    5.
             PERENNIAL FORBS =  14.79    .74    .77  71.01   79.60
    5  ANN GRASS
         VUOC       .02    2.
              ANNUAL GRASSES =    .10    .00    .25    .48     .54
    4  ANN FORBS
         DEPI       .01    1.
         LARE       .01    1.
         PLPA       .01    2.
         UNK        .02    2.
                ANNUAL FORBS =    .13    .01    .19    .62     .70

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 159.44  178.73


      PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    ***************************      ***********************************
     OCT 15 TO APR 15 =  3.85          ARTR             350.70  393.14
     APR 15 TO JULY 1 =  3.90          OPPO              25.52   28.60
     JULY 1 TO SEPT 1 =   .80          PHHO              19.49   21.85
     SEPT 1 TO OCT 15 =  2.80
     SEASON TOTAL     = 11.35
     LONG TERM AVERAGE=  9.35

                          TOTAL SHRUB PRODUCTION =  395.71  443.59


                                 TOTAL PRODUCTION =  555.15  622.33
                                 **********************************
```

```
  2007.   BUD KIMBAL    24 JUNE        1982      OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
    6  SHRUBS
         ARTR      8.60     12.
         CPPO       .09      3.
         PHHO       .01      1.
    3  PER GRASS
         AGSM       .56     18.    8.27      .41      .74   39.70     44.50
         POSE      1.99     18.    9.78      .49      .25   46.96     52.64
                   TOTAL PERENNIAL GRASS PRODUCTION =       86.66     97.15
    2  PER FORBS
         CACH       .43      4.
         ERPU       .43      6.
               PERENNIAL FORBS =   7.35      .37      .43   35.29     39.56
    5  ANN GRASS
         BRTE       .01      1.
         VUCC       .07      7.
                ANNUAL GRASSES =    .40      .02      .29    1.92      2.15
    4  ANN FORBS
         COLI       .01      2.
         DEPI       .01      1.
         LARE       .01      2.
         PLPA       .01      1.
                  ANNUAL FORBS =    .04      .00      .07     .19       .21

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 124.06    139.07


      PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    **************************         **********************************
     OCT 15 TO APR 15 =   3.85           ARTR              235.44  263.92
     APR 15 TO JULY 1 =   3.90           OPPO               63.50   71.18
     JULY 1 TO SEPT 1 =    .80           PHHO                6.87    7.71
     SEPT 1 TO OCT 15 =   2.80
     SEASON TOTAL      = 11.35
     LONG TERM AVERAGE=   9.35

                              TOTAL SHRUB PRODUCTION =  305.81  342.81


                                    TOTAL PRODUCTION =  429.87  481.88
                                    **********************************
```

```
   2007.   BUD KIMBAL    24 JUNE       1982     IN SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR      2.60    5.
         OPPO       .19    3.
    3  PER GRASS
         AGSM       .83   18.   29.92   1.50   1.80 143.66  161.04
         POSE       .64    7.    9.00    .45    .71  43.21   48.44
         SPCR       .25    1.    3.98    .20    .80  19.11   21.42
         STCO       .40    3.    7.91    .40    .99  37.98   42.58
                 TOTAL PERENNIAL GRASS PRODUCTION = 243.96  273.48
    2  PER FORBS
         AGGL       .14    3.
         ANDI       .01    1.
         LASE       .02    1.
         TRDU       .05    1.
             PERENNIAL FORBS =   6.16    .31   1.47  29.57   33.15
    5  ANN GRASS
         BRTE      1.07   17.
         VUOC       .04    4.
              ANNUAL GRASSES = 115.48   5.77   5.23 554.49  621.58
    4  ANN FORBS
         COLI       .03    5.
         DEPI       .02    4.
         LARE       .04    4.
         PLPA       .01    1.
                ANNUAL FORBS =    .73    .04    .43   3.50    3.92

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 831.52  932.13


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  3.85         ARTR           43.43   48.69
     APR 15 TO JULY 1 =  3.90         OPPO           27.36   30.67
     JULY 1 TO SEPT 1 =   .80
     SEPT 1 TO OCT 15 =  2.80
     SEASON TOTAL     = 11.35
     LONG TERM AVERAGE=  9.35

                          TOTAL SHRUB PRODUCTION =   70.79   79.36


                                TOTAL PRODUCTION =  902.31 1011.49
                                **********************************
```

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  2007.   BUD KIMBAL    25 JUNE       1982     CUT SPRAY

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT   PLANT   AVE.    1X1    TOTAL   AVE.   WGT./   LBS    KGS
 CODE    NAME    PER-    ABS.   WGT.    WGT.   UNIT    PER    PER
                 CENT    PLOT   GMS/20  /PLOT  COVER   ACRE   HA.
                 COVER   FREQ.  SQ.FT.  OCCUR- AREA
                 AREA    BASE           RENCES
                         20
********************************************************************************
    6  SHRUBS
         ARTR      1.70      4.
         OPPO       .10      2.
    3  PER GRASS
         AGSM      1.21     20.  49.54    2.48    2.06 237.87   266.65
         POSE      2.60     19.  36.57    1.83     .70 175.59   196.84
                 TOTAL PERENNIAL GRASS PRODUCTION = 413.46   463.49
    2  PER FORBS
         ERPU       .05      1.
             PERENNIAL FORBS =    .27     .01     .27   1.29     1.45
    5  ANN GRASS
         BRTE       .01      2.
         VUOC       .37     19.
               ANNUAL GRASSES =  9.92     .50    1.32  47.63    53.39
    4  ANN FORBS
         COLI       .01      1.
         LARE       .01      2.
         PLPA       .18     13.
         UNK        .01      1.
                 ANNUAL FORBS =  6.39     .32    1.64  30.68    34.39

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 493.06   552.72


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        ***********************************
     OCT 15 TO APR 15 =  3.85           ARTR               26.59    29.81
     APR 15 TO JULY 1 =  3.90           OPPO               43.86    49.17
     JULY 1 TO SEPT 1 =   .80           PHHO                2.01     2.26
     SEPT 1 TO OCT 15 =  2.80
     SEASON TOTAL     = 11.35
     LONG TERM AVERAGE=  9.35

                              TOTAL SHRUB PRODUCTION =    72.47    81.24


                                    TOTAL PRODUCTION =  565.53   633.96
                                    **********************************
  2002.    BUFFALO CR     21 JULY        1982      IN NATIVE

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT    PLANT    AVE.     1X1      TOTAL     AVE.     WGT./    LBS     KGS
 CODE     NAME     PER-     ABS.     WGT.      WGT.     UNIT     PER     PER
                   CENT     PLOT     GMS/20    /PLOT    COVER    ACRE    HA.
                   COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                   AREA     BASE               RENCES
                            20
*************************************************************************
    6  SHRUBS
         ARTR      12.73     14.
         CHVI        .50      1.
         OPPO        .65      2.
         PHHO       2.03      7.
    3  PER GRASS
         AGSP       1.17     18.   30.04     1.50     1.28  144.24   161.69
         KOCR        .35      6.    5.90      .30      .84   28.32    31.75
         POSE        .95     18.    5.98      .30      .31   28.71    32.18
                   TOTAL PERENNIAL GRASS PRODUCTION = 201.27   225.62
    2  PER FORBS
         ASPU        .02      1.
         ERPU        .01      1.
         SPCO        .01      1.
                PERENNIAL FORBS =   0.00     0.00     0.00    0.00     0.00

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 201.27   225.62


     PRECIPITATION DATA
     RAIN GAUGE
   ***************************
     OCT 15 TO APR 15 =   3.25
     APR 15 TO JULY 1 =   3.00
     JULY 1 TO SEPT 1 =   1.95
     SEPT 1 TO OCT 15 =   3.48
     SEASON TOTAL     =  11.68
     LONG TERM AVERAGE=  10.37
    2002.   BUFFALO CR     21 JULY        1982      CUT NATIVE

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
  PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
  CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                    CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                    COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                    AREA    BASE             RENCES
                            20
***********************************************************************
     6  SHRUBS
          ARTR       9.25      9.
          CHVI        .25      1.
          OPPO        .02      1.
          PHHO        .58      7.
     3  PER GRASS
          AGSP       1.43     19.  34.69    1.73    1.21 166.57   186.72
          KOCR        .09      1.    .49     .02     .27   2.35     2.63
          POSE       1.02     12.   3.59     .18     .18  17.23    19.31
                    TOTAL PERENNIAL GRASS PRODUCTION = 186.15   208.67
     2  PER FORBS
          ARHO2       .01      1.
          SPCO        .09      6.
                PERENNIAL FORBS =    .78     .04     .39   3.74     4.19

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 189.89   212.87


       PRECIPITATION DATA
       RAIN GAUGE
     **************************
       OCT 15 TO APR 15 =  3.25
       APR 15 TO JULY 1 =  3.00
       JULY 1 TO SEPT 1 =  1.95
       SEPT 1 TO OCT 15 =  3.48
       SEASON TOTAL     = 11.68
       LONG TERM AVERAGE= 10.37
  2003.   BURNTWAGON     6 JULY       1982     IN NATIVE

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X10
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
*********************************************************************
    6  SHRUBS
         ATGA        6.97     20. 131.08    6.55     .94  62.94    70.56

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  62.94    70.56


    PRECIPITATION DATA
    RAIN GAUGE
  **************************
    OCT 15 TO APR 15 =  1.33
    APR 15 TO JULY 1 =  1.58
    JULY 1 TO SEPT 1 =  1.69
    SEPT 1 TO OCT 15 =  1.43
    SEASON TOTAL     =  6.03
    LONG TERM AVERAGE=  6.13
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2003.   BURNTWAGON      6 JULY        1982      CUT NATIVE

                    NUMBER OF PLOTS = 20
                      PLOT SIZE 1X10
LANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
ODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                 CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                 AREA    BASE             RENCES
                         20
**********************************************************************
  6   SHRUBS
        ATGA       7.38     20. 118.98    5.95     .61  57.13   64.04
        CPPO        .02      1.

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  57.13   64.04


   PRECIPITATION DATA
   RAIN GAUGE
 *************************
   OCT 15 TO APR 15 =  1.33
   APR 15 TO JULY 1 =  1.58
   JULY 1 TO SEPT 1 =  1.69
   SEPT 1 TO OCT 15 =  1.43
   SEASON TOTAL     =  6.03
   LONG TERM AVERAGE=  6.13
   403.   CEDAR MTN     26 JULY       1982     IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARHO2      .03     2.
        ARSP       .50     3.
        ARTR      6.06     7.
        ATCO      1.65     3.   2.00     .10     .06   9.60    10.76
        CHVI       .30     2.
        KOAM      1.96     8.
   3  PER GRASS
        POSE       .57     8.   2.85     .14     .25  13.68    15.34
        SIHY       .59    11.  11.17     .56     .95  53.63    60.12
                TOTAL PERENNIAL GRASS PRODUCTION =    67.31    75.45
   2  PER FORBS
        PHLO       .19    10.
            PERENNIAL FORBS =   2.04     .10     .54   9.79    10.97

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =    86.70    97.19


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   **************************        **********************************
    OCT 15 TO APR 15 =  3.35           ARFR                .29      .32
    APR 15 TO JULY 1 =  5.35           ARTR             224.72   251.92
    JULY 1 TO SEPT 1 =  1.40           ATCO              23.33    26.15
    SEPT 1 TO OCT 15 =  2.25           CELA                .80      .90
    SEASON TOTAL     = 12.35           CHVI              19.02    21.32
    LONG TERM AVERAGE= 10.01           KOAM               3.90     4.37

                         TOTAL SHRUB PRODUCTION =   272.06   304.97


                               TOTAL PRODUCTION =   356.76   402.16
                               **********************************
    403.   CEDAR MTN     26 JULY       1982     CUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      8.00     8.
         ATCO       .10     1.
         CHVI      1.50     1.
    3  PER GRASS
         AGSP       .13     4.   2.95    .15    1.18   14.16   15.67
         ORHY       .08     1.    .32    .02     .21    1.53    1.72
         POSE      1.10     8.   3.08    .15     .14   14.78   16.57
         SIHY       .67     9.   6.10    .31     .46   29.29   32.83
                 TOTAL PERENNIAL GRASS PRODUCTION =   59.76   66.99
    2  PER FORBS
         PHLO       .04     3.
             PERENNIAL FORBS =    .41    .02     .59    1.96    2.20

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   61.72   69.19


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    **************************          ***********************************
     OCT 15 TO APR 15 =  3.35             ARFR                  .29     .32
     APR 15 TO JULY 1 =  5.35             ARTR               123.25  138.16
     JULY 1 TO SEPT 1 =  1.40             ATCO                11.00   12.33
     SEPT 1 TO OCT 15 =  2.25             CHVI                 6.36    7.13
     SEASON TOTAL     = 12.35             KOAM                  .05     .05
     LONG TERM AVERAGE= 10.01             PHHO                  .53     .60

                          TOTAL SHRUB PRODUCTION =  141.48  158.59


                                TOTAL PRODUCTION =  203.20  227.78
                                **********************************
```

```
   1501.   COCHRAN       20 JULY      1982      IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./  LBS    KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT   PER    PER
                 CENT   PLOT   GMS/20  /PLOT  COVER  ACRE   HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR    19.30    13.
    3  PER GRASS
         AGCR      .10     1.    .89    .04    .45   4.27    4.79
         AGSM      .39    16.   5.82    .29    .76  27.94   31.32
         AGSP      .20     4.   0.00   0.00   0.00   0.00    0.00
         POSE      .67    11.   2.19    .11    .16  10.51   11.78
         STCO      .08     1.    .77    .04    .51   3.69    4.14
                 TOTAL PERENNIAL GRASS PRODUCTION = 46.41   52.03
    2  PER FORBS
         ERPU      .55     1.
         SPCO      .15     4.
             PERENNIAL FORBS =   .31    .02    .02   1.48    1.66
    5  ANN GRASS
         BRTE      .10     4.
         VUOC      .14     2.
              ANNUAL GRASSES =  1.08    .05    .23   5.18    5.81

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 53.07   59.49


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  2.60         ARTR            335.90  376.54
     APR 15 TO JULY 1 =  3.10         OPPO             39.38   44.15
     JULY 1 TO SEPT 1 =  2.44
     SEPT 1 TO OCT 15 =  3.20
     SEASON TOTAL      = 11.34
     LONG TERM AVERAGE= 10.37

                          TOTAL SHRUB PRODUCTION = 375.28  420.69


                                TOTAL PRODUCTION = 426.35  480.18
                                **********************************
   1501.   COCHRAN        20 JULY        1982      OUT NATIVE

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
 PLANT    PLANT    AVE.     1X1     TOTAL    AVE.     WGT./    LBS     KGS
 CODE     NAME     PER-     ABS.    WGT.     WGT.     UNIT     PER     PER
                   CENT     PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                   COVER    FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA     BASE             RENCES
                            20
******************************************************************************
     6   SHRUBS
           ARTR      13.00     10.
           PHHO        .17      2.
     3   PER GRASS
           AGSM        .93     20.  15.53      .78      .83  74.57    83.59
           POSE       1.29     17.   4.40      .22      .17  21.12    23.68
           STCO        .17      2.   1.20      .06      .36   5.76     6.46
                   TOTAL PERENNIAL GRASS PRODUCTION = 101.45  113.73
     5   ANN GRASS
           BRTE        .02      3.
           VUOC        .01      1.
                ANNUAL GRASSES =     .08      .00      .20     .38      .43

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 101.83  114.15


      PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    *************************        **********************************
     OCT 15 TO APR 15 =  2.60         ARTR            304.77  341.65
     APR 15 TO JULY 1 =  3.10         OPPO               .77      .86
     JULY 1 TO SEPT 1 =  2.44
     SEPT 1 TO OCT 15 =  3.20
     SEASON TOTAL     = 11.34
     LONG TERM AVERAGE= 10.37

                              TOTAL SHRUB PRODUCTION =  305.53  342.50


                                    TOTAL PRODUCTION =  407.36  456.66
                                    ***********************************
   1501.   COCHRAN       20 JULY       1982     CUT SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR       .20      1.
         OPPO       .30      1.
    3  PER GRASS
         AGSM      1.56     20.  19.23    .96    .62  92.33  103.50
         POSE      1.03     18.   8.68    .43    .42  41.67   46.71
         STCO       .49      7.   2.85    .14    .29  13.68   15.34
                 TOTAL PERENNIAL GRASS PRODUCTION = 147.68  165.55
    2  PER FORBS
         ERPU       .02      1.
             PERENNIAL FORBS =    .07    .00    .18    .33     .37
    5  ANN GRASS
         BRTE       .02      4.
         VUCC       .05      3.
              ANNUAL GRASSES =   0.00   0.00   0.00   0.00    0.00

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 148.01  165.92


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  2.60         ARTR            8.65   9.70
     APR 15 TO JULY 1 =  3.10         OPPO           33.32  37.35
     JULY 1 TO SEPT 1 =  2.44
     SEPT 1 TO OCT 15 =  3.20
     SEASON TOTAL     = 11.34
     LONG TERM AVERAGE= 10.37

                          TOTAL SHRUB PRODUCTION =   41.97   47.04


                                TOTAL PRODUCTION =  189.98  212.96
                                **********************************
```

```
  1901.   CUMBER 1         5 AUGUST      1982      IN NATIVE

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
 PLANT     PLANT     AVE.   1X1     TOTAL     AVE.    WGT./    LBS    KGS
 CODE      NAME      PER-   ABS.    WGT.      WGT.    UNIT     PER    PER
                     CENT   PLOT    GMS/20    /PLOT   COVER    ACRE   HA.
                     COVER  FREQ.   SQ.FT.    OCCUR-  AREA
                     AREA   BASE              RENCES
                            20
*****************************************************************************
    6  SHRUBS
         ARTR       7.75       5.
         ATGA       3.75       6.   12.37      .62      .16   59.39    66.58
         CHVI       2.30       5.
         SAVE       7.00       6.
    3  PER GRASS
         AGSM       1.13      20.   18.65      .93      .83   89.55   100.39
         POSE       1.25      10.    4.36      .22      .17   20.93    23.46
         SIHY        .02       2.    2.92      .15     6.79   14.02    15.72
                  TOTAL PERENNIAL GRASS PRODUCTION = 124.50   139.56
    2  PER FORBS
         PHLO        .10       4.
             PERENNIAL FORBS =     .37      .02      .19    1.77     1.98

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 185.66   208.12


      PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    **************************           ***********************************
     OCT 15 TO APR 15 =   4.19             ARTR              125.58   140.78
     APR 15 TO JULY 1 =    .84             CELA                 .10      .11
     JULY 1 TO SEPT 1 =   2.20             CHVI               10.97    12.29
     SEPT 1 TO OCT 15 =   3.24             PHHO               31.91    35.77
     SEASON TOTAL      = 10.47             SAVE               53.42    59.88
     LONG TERM AVERAGE=   7.96

                               TOTAL SHRUB PRODUCTION =  221.98   248.84


                                     TOTAL PRODUCTION =  407.64   456.96
                                     *********************************
```

```
   1901.   CUMBER 1       5 AUGUST     1982     CUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      5.40    4.
         ATGA      4.90   12.   22.88    1.14     .23  109.86  123.15
         CHVI      1.00    5.
         SAVE       .50    2.
    3  PER GRASS
         AGSM      1.18   20.   11.78     .59     .50   56.56   63.40
         POSE       .24    4.     .59     .03     .12    2.83    3.17
                 TOTAL PERENNIAL GRASS PRODUCTION =   59.39   66.58

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  169.25  189.73


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  4.19         ARTR           72.01   80.72
     APR 15 TO JULY 1 =   .84         CHVI           22.11   24.79
     JULY 1 TO SEPT 1 =  2.20         SAVE           18.36   20.58
     SEPT 1 TO OCT 15 =  3.24
     SEASON TOTAL     = 10.47
     LONG TERM AVERAGE=  7.96

                          TOTAL SHRUB PRODUCTION =   112.48  126.09


                                TOTAL PRODUCTION =   281.73  315.82
                                ***********************************
```

```
  1901.   CUMBER 1        5 AUGUST      1982      IN SPRAY

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT     PLANT    AVE.     1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE      NAME     PER-     ABS.    WGT.     WGT.     UNIT     PER    PER
                    CENT     PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                    COVER    FREQ.   SQ.FT.   OCCUR-   AREA
                    AREA     BASE             RENCES
                             20
**********************************************************************
    6  SHRUBS
         CHVI         .20      1.
         SAVE        1.85      4.
    3  PER GRASS
         AGSM        1.02     14.   15.85      .79      .78   76.10    85.31
         POFE         .91      5.    7.71      .39      .42   37.02    41.50
         POSE         .95      9.    5.95      .30      .31   28.57    32.03
         SIHY         .10      1.     .47      .02      .24    2.25     2.52
                    TOTAL PERENNIAL GRASS PRODUCTION = 143.94   161.36
    4  ANN FORBS
         DEPI         .01      1.
                   ANNUAL FORBS =     .08      .00      .40     .38      .43

               ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 144.32   161.78


          PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
          RAIN GAUGE                        AND WOODY MAT FORM PLANTS
        *************************           *********************************
          OCT 15 TO APR 15 =   4.19           ARTR                2.85     3.19
          APR 15 TO JULY 1 =    .84           CHVI               10.12    11.35
          JULY 1 TO SEPT 1 =   2.20           PHHO                 .57      .64
          SEPT 1 TO OCT 15 =   3.24
          SEASON TOTAL     =  10.47
          LONG TERM AVERAGE=   7.96

                              TOTAL SHRUB PRODUCTION =    13.54    15.18


                                    TOTAL PRODUCTION =  157.86   176.96
                                    **********************************
```

```
   1901.   CUMBER 1       5 AUGUST      1982     OUT SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR       .35     1.
         ATGA     12.25    12.   46.66   2.33    .19 224.04  251.15
         CHVI       .15     1.
         SAVE      3.00     1.
    3  PER GRASS
         AGSM      1.46    20.   15.35     .77    .53  73.70   82.62
         POSE       .58     7.    1.27     .06    .11   6.09    6.83
         SIHY       .05     1.     .21     .01    .23   1.00    1.12
                 TOTAL PERENNIAL GRASS PRODUCTION =   80.79   90.57

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 304.83  341.71


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =   4.19        ARTR            10.07   11.29
     APR 15 TO JULY 1 =    .84        CHVI            10.30   11.55
     JULY 1 TO SEPT 1 =   2.20        SAVE            23.16   25.96
     SEPT 1 TO OCT 15 =   3.24
     SEASON TOTAL     =  10.47
     LONG TERM AVERAGE=   7.96

                          TOTAL SHRUB PRODUCTION =    43.53   46.79


                                TOTAL PRODUCTION =   348.36  390.51
                                **********************************
   1201.   CUMBER 2       5 AUGUST     1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARLO      7.75     4.
         CHVI      5.05     8.
         PHMU      1.25     2.
         TECA       .60     1.
    3  PER GRASS
         AGSM       .81    20.  13.08    .65    .81  62.80   70.40
         POFE       .63     9.   6.17    .31    .49  29.62   33.20
         POSE       .63     9.   2.66    .13    .21  12.77   14.32
                 TOTAL PERENNIAL GRASS PRODUCTION = 105.19  117.92
    2  PER FORBS
         AGGL      0.00     0.
         ARHO       .05     3.
         AST        .01     1.
         COPA       .44     8.
         ERMI       .35     2.
         ERUM       .40     2.
         PHLO       .83    13.
         SEIN       .36     6.
         TRGY       .03     5.
         VINU       .10     1.
             PERENNIAL FORBS =  16.43    .82    .32  78.89   88.44
    4  ANN FORBS
         LEDE       .02     3.
                ANNUAL FORBS =    .11    .01    .37    .52     .58

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 184.60  206.94


     PRECIPITATION DATA
     RAIN GAUGE
   **************************
     OCT 15 TO APR 15 =  6.04
     APR 15 TO JULY 1 =  1.54
     JULY 1 TO SEPT 1 =  3.23
     SEPT 1 TO OCT 15 =  3.23
     SEASON TOTAL     = 14.04
     LONG TERM AVERAGE=  9.46
 1201.   CUMBER 2        5 AUGUST      1982      OUT NATIVE

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
PLANT     PLANT     AVE.     1X1      TOTAL     AVE.     WGT./     LBS     KGS
CODE      NAME      PER-     ABS.     WGT.      WGT.     UNIT      PER     PER
                    CENT     PLOT     GMS/20    /PLOT    COVER     ACRE    HA.
                    COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                    AREA     BASE               RENCES
                             20
*****************************************************************************
    6   SHRUBS
          ARTR      11.49     12.
          CHVI       5.03     10.
    3   PER GRASS
          AGSM        .83     19.     8.09       .40       .49    38.84    43.54
          POFE       1.07      9.     4.60       .23       .21    22.08    24.75
          POSE       1.03     12.     3.70       .19       .18    17.76    19.91
                    TOTAL PERENNIAL GRASS PRODUCTION =            78.68    88.20
    2   PER FORBS
          ARHO2       .05      2.
          ASDI        .31      5.
          CACH        .03      1.
    6   SHRUBS
          ERMI       1.20      5.
    2   PER FORBS
          ERUM        .49      4.
          PHLO        .53     14.
          SEIN        .16      4.
          TRGY        .06      7.
                PERENNIAL FORBS =     8.66       .43       .35    41.58    46.61

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 120.26   134.81


     PRECIPITATION DATA
     RAIN GAUGE
  *************************
     OCT 15 TO APR 15 =   6.04
     APR 15 TO JULY 1 =   1.54
     JULY 1 TO SEPT 1 =   3.23
     SEPT 1 TO OCT 15 =   3.23
     SEASON TOTAL     = 14.04
     LONG TERM AVERAGE=   9.46
```

```
   1201.   CUMBER 2       5 AUGUST     1982      IN SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT   COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         CHVI      1.85     4.
         ERMI       .40     1.
         PHHO       .80     3.
         TECA       .10     1.
    3  PER GRASS
         AGSM      1.02    20.  23.48   1.17   1.15 112.74  126.38
         POFE       .95    11.  16.53    .83    .87  79.37   88.97
         POSE       .25     4.   1.77    .09    .35   8.49    9.52
                 TOTAL PERENNIAL GRASS PRODUCTION = 200.60  224.87
    2  PER FORBS
         AGGL       .03     2.
         ARHO       .05     4.
         AST        .01     2.
         ASMI       .05     1.
         LILE       .02     2.
         PHLO       .27    12.
             PERENNIAL FORBS =   5.11    .26    .61  24.53   27.50
    4  ANN FORBS
         DEPI       .02     2.
                ANNUAL FORBS =    .09    .00    .30    .43     .48

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 225.56  252.85


     PRECIPITATION DATA
     RAIN GAUGE
   **************************
     OCT 15 TO APR 15 =  6.04
     APR 15 TO JULY 1 =  1.54
     JULY 1 TO SEPT 1 =  3.23
     SEPT 1 TO OCT 15 =  3.23
     SEASON TOTAL     = 14.04
     LONG TERM AVERAGE=  9.46
 1201.   CUMBER 2        5 AUGUST      1982      CUT SPRAY

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
PLANT   PLANT    AVE.   1X1    TOTAL    AVE.    WGT./   LBS    KGS
CODE    NAME     PER-   ABS.   WGT.     WGT.    UNIT    PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
***********************************************************************
   6  SHRUBS
        ARLC       2.55      2.
        CHVI       7.20     14.
   3  PER GRASS
        AGSM       1.33     19.  15.42     .77     .58  74.04    83.00
        POSE       1.07     11.  27.47    1.37    1.28 131.90   147.86
                 TOTAL PERENNIAL GRASS PRODUCTION = 205.94   230.86
   2  PER FORBS
        ASDI        .35      2.
        ASCI        .02      2.
        COPA        .02      1.
        ERPU        .10      2.
        SEIN        .25      1.
              PERENNIAL FORBS =    5.01     .25     .34  24.05    26.96
   4  ANN FORBS
        CHLE        .02      1.
                 ANNUAL FORBS =     .12     .01     .40    .57      .64

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 230.56   258.46


     PRECIPITATION DATA
     RAIN GAUGE
   *************************
     OCT 15 TO APR 15 =  6.04
     APR 15 TO JULY 1 =  1.54
     JULY 1 TO SEPT 1 =  3.23
     SEPT 1 TO OCT 15 =  3.23
     SEASON TOTAL     = 14.04
     LONG TERM AVERAGE=  9.46
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  1202.   CUMBER 3        4 AUGUST      1982      IN NATIVE

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT     AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME      PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                    CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                    COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                    AREA   BASE             RENCES
                           20
**********************************************************************
    6  SHRUBS
         ANDI         .10     1.
        .ARTR       16.00     9.
         CHVI        1.78     4.
         ERMI        1.50     4.
         PHHO         .70     5.
         TECA         .50     1.
    3  PER GRASS
         AGSM         .81    13.   16.20      .81    1.00   77.78    87.19
         AGSP         .30     5.    5.71      .29     .95   27.41    30.73
         KOCR         .04     1.     .80      .04    1.01    3.84     4.30
         POFE         .58     6.    8.58      .43     .74   41.19    46.17
         POSE        1.02     8.    6.82      .34     .34   32.74    36.70
                    TOTAL PERENNIAL GRASS PRODUCTION = 182.96   205.10
    2  PER FORBS
         ARHO2        .07     3.
         ASMI         .03     1.
         ORFA         .06     3.
         PHLO         .49     9.
         TRGY         .36    10.
                PERENNIAL FORBS =  10.55      .53     .53   50.65    56.78

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 233.61   261.88


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                           AND WOODY MAT FORM PLANTS
   *************************              ***********************************
    OCT 15 TO APR 15 =  8.83                ARTR            576.34   646.08
    APR 15 TO JULY 1 =  1.82                CHVI             50.85    57.00
    JULY 1 TO SEPT 1 =  5.21                ERMI              2.26     2.53
    SEPT 1 TO OCT 15 =  5.35                PHHO             17.38    19.48
    SEASON TOTAL     = 21.21                TECA              1.39     1.56
    LONG TERM AVERAGE= 11.44

                              TOTAL SHRUB PRODUCTION =  648.22   726.66


                                    TOTAL PRODUCTION =  861.83   988.53
                                    **********************************
  1202.   CUMBER 3       4 AUGUST     1982     OUT NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARTR     14.65    11.
        CHVI      5.85     9.
        ERMI      1.73     5.
        PHHO       .45     4.
   3  PER GRASS
        AGSM      1.16    15.  26.88   1.34   1.16 129.06  144.68
        AGSP       .30     3.   4.55    .23    .76  21.84   24.48
        POFE       .90     5.   9.82    .49    .55  47.15   52.86
        POSE       .68     8.   3.56    .18    .26  17.09   19.16
        SIHY       .04     1.   1.25    .06   1.56   6.00    6.73
                TOTAL PERENNIAL GRASS PRODUCTION = 221.14  247.90
   2  PER FORBS
        ARHO2      .05     2.
        ASMI       .13     1.
        ORFA       .05     2.
        PHLO       .28    14.
        TRGY       .37    15.
            PERENNIAL FORBS =   6.40    .32    .37  30.73   34.45
   4  ANN FORBS
        LARE       .01     1.
        LEDE       .01     1.
               ANNUAL FORBS =    .04    .00    .20    .19     .21

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 252.06  282.56


     PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                    AND WOODY MAT FORM PLANTS
   **************************      **********************************
    OCT 15 TO APR 15 =  8.83         ARTR          500.30  560.84
    APR 15 TO JULY 1 =  1.82         CHVI           80.52   90.26
    JULY 1 TO SEPT 1 =  5.21         ERMI            3.53    3.95
    SEPT 1 TO OCT 15 =  5.35         PHHO           16.03   17.97
    SEASON TOTAL     = 21.21
    LONG TERM AVERAGE= 11.44

                         TOTAL SHRUB PRODUCTION =  600.38  673.03


                               TOTAL PRODUCTION =  852.44  955.59
                               **********************************
   1202.   CUMBER 3       4 AUGUST     1982     IN SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR       .83     4.
         CHVI     11.25    10.
         ERMI       .76     2.
    3  PER GRASS
         AGSM       .94    13.  26.57   1.33   1.41 127.58  143.02
         AGSP       .92     9.  30.04   1.50   1.63 144.24  161.69
         POFE      1.30     9.  20.35   1.02    .78  97.71  109.53
         POSE       .80     9.   6.71    .34    .42  32.21   36.11
                 TOTAL PERENNIAL GRASS PRODUCTION = 401.74  450.35
    2  PER FORBS
         ARHO2      .04     2.
         PHLO       .32     9.
         TRGY       .28     8.
             PERENNIAL FORBS =   4.75    .24    .37  22.80   25.56

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 424.54  475.91


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  8.83        CHVI           42.79   47.97
     APR 15 TO JULY 1 =  1.82        ERMI            4.45    4.99
     JULY 1 TO SEPT 1 =  5.21        TECA           21.35   23.94
     SEPT 1 TO OCT 15 =  5.35
     SEASON TOTAL     = 21.21
     LONG TERM AVERAGE= 11.44

                          TOTAL SHRUB PRODUCTION =   68.59   76.89


                                TOTAL PRODUCTION =  493.13  552.80
                                **********************************
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  1202.   CUMBER 3        4 AUGUST      1982      CUT SPRAY

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL    AVE.    WGT./   LBS    KGS
 CODE    NAME    PER-   ABS.   WGT.     WGT.    UNIT    PER    PER
                 CENT   PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                 COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA   BASE            RENCES
                        20
*************************************************************************
    6  SHRUBS
         ANDI      .43     3.
         ARTR     7.45     9.
         CHVI     1.40     2.
         ERMI     2.27     6.
         PHHO      .60     4.
         TECA      .60     3.
    3  PER GRASS
         AGSM     1.71    19.  37.26    1.66    1.09 178.91   200.56
         AGSP      .73     5.  17.74     .89    1.22  85.18    95.49
         POSE     2.37    15.   7.59     .38     .16  36.44    40.85
         STCO      .08     1.   1.37     .07     .91   6.57     7.36
                 TOTAL PERENNIAL GRASS PRODUCTION = 307.10   344.26
    2  PER FORBS
         AGGL      .07     3.
         ARHO2     .06     3.
         ORFA      .08     3.
         PHLO      .27     9.
         TRGY      .39    11.
             PERENNIAL FORBS =  4.62     .23     .27  22.18    24.86

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 329.28   369.12


    PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                      AND WOODY MAT FORM PLANTS
  *************************         **********************************
   OCT 15 TO APR 15 =- 8.83           ARTR               77.36   86.72
   APR 15 TO JULY 1 =  1.82           CHVI              180.63  202.49
   JULY 1 TO SEPT 1 =  5.21           ERMI               13.53   15.17
   SEPT 1 TO OCT 15 =  5.35           OPPO                1.58    1.77
   SEASON TOTAL     = 21.21           PHHO                1.51    1.70
   LONG TERM AVERAGE= 11.44           TECA                8.54    9.57

                         TOTAL SHRUB PRODUCTION =  283.16   317.42


                              TOTAL PRODUCTION =  612.44   686.54
                              **********************************
  1902.   CUMBER 4         5 AUGUST       198      IN NATIVE

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA '  BASE             RENCES
                          20
*******************************************************************************
   6  SHRUBS
        ATGA        .63       2.    4.88     .24      .39  23.43    26.27
        ARSP        .75       1.
        CELA        .03       1.
   3  PER GRASS
        AGSM        .68      15.    6.88     .34      .51  33.03    37.03
        SIHY        .18       5.    1.97     .10      .56   9.45    10.59
                  TOTAL PERENNIAL GRASS PRODUCTION =  42.48    47.62

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  65.91    73.89


     PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    **************************          ***********************************
    OCT 15 TO APR 15 =  4.14              CELA                    .56     .62
    APR 15 TO JULY 1 =   .79              PHHO                   6.76    7.58
    JULY 1 TO SEPT 1 =  2.26
    SEPT 1 TO OCT 15 =  2.66
    SEASON TOTAL     =  9.85
    LONG TERM AVERAGE=  8.19

                             TOTAL SHRUB PRODUCTION =     7.32     8.20


                                   TOTAL PRODUCTION =  73.23   82.09
                                   ***********************************
  1902.   CUMBER 4        5 AUGUST      1982      OUT NATIVE

                           NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
**********************************************************************
   6  SHRUBS
         ARSP      1.65     6.
         ATGA      4.84    10.   18.46      .92      .19   88.63   99.35
         CELA      1.50     3.
         TESP       .30     1.
   3  PER GRASS
         AGSM       .09     3.     .58      .03      .32    2.78    3.12
         POSE       .05     2.     .05      .00      .05     .24     .27
         SIHY       .56    12.    3.35      .17      .30   16.08   18.03
                  TOTAL PERENNIAL GRASS PRODUCTION =       19.10   21.41

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =      107.73  120.77


     PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                            AND WOODY MAT FORM PLANTS
    *************************              ********************************
     OCT 15 TO APR 15 =   4.14               CELA               8.30    9.30
     APR 15 TO JULY 1 =    .79               PHHO               1.84    2.07
     JULY 1 TO SEPT 1 =   2.26
     SEPT 1 TO OCT 15 =   2.66
     SEASON TOTAL     =   9.85
     LONG TERM AVERAGE=   8.19

                          TOTAL SHRUB PRODUCTION =    10.14   11.37


                               TOTAL PRODUCTION =  117.87  132.13
                               *********************************
  2004.   DEMER          21 JULY        1982      IN NATIVE

                       NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
***********************************************************************
   6  SHRUBS
        ARTR     28.25    14.
        OPPO      1.45     4.
   3  PER GRASS
        AGSM       .65    17.  13.54     .68    1.03   65.01    72.88
        BOGR       .16     3.    .48     .02     .15    2.30     2.58
        POSE       .89    11.   5.85     .29     .33   28.08    31.48
        SIHY       .01     1.    .13     .01     .65     .62      .70
                  TOTAL PERENNIAL GRASS PRODUCTION =   96.01   107.63
   5  ANN GRASS
        BRTE       .03     1.
               ANNUAL GRASSES =    .76     .04    1.52    3.64     4.08

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =      99.65   111.71


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   **************************         *********************************
    OCT 15 TO APR 15 =  2.60           ARTR            293.60   329.13
    APR 15 TO JULY 1 =  3.35           OPPO             11.84    13.27
    JULY 1 TO SEPT 1 =  1.80
    SEPT 1 TO OCT 15 =  3.20
    SEASON TOTAL     = 10.95
    LONG TERM AVERAGE=  8.64

                              TOTAL SHRUB PRODUCTION =  305.44   342.40


                                    TOTAL PRODUCTION =  405.09   454.11
                                    **********************************
  2004.   DEMER           21 JULY         1982      OUT NATIVE

                            NUMBER OF PLOTS = 20
                               PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1      TOTAL    AVE.     WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.     WGT.     WGT.     UNIT     PER     PER
                   CENT    PLOT     GMS/20   /PLOT    COVER    ACRE    HA.
                   COVER   FREQ.    SQ.FT.   OCCUR-   AREA
                   AREA    BASE              RENCES
                           20
***************************************************************************
    6   SHRUBS
          ARTR      21.00     15.
          OPPO        .06      2.
    3   PER GRASS
          AGSM        .04      2.      .26       .01      .37    1.24      1.39
          BOGR        .71      5.     3.03       .15      .21   14.54     16.30
          POSE        .80     11.     1.97       .10      .12    9.45     10.59
          SIHY        .34      5.     1.72       .09      .26    8.25      9.25
                   TOTAL PERENNIAL GRASS PRODUCTION =           33.46     37.53
    2   PER FORBS
          SPCO        .01      1.
               PERENNIAL FORBS =       .05       .00      .50     .24       .27
    5   ANN GRASS
          BRTE        .01      2.
                ANNUAL GRASSES =       .11       .01      .55     .52       .58

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =             34.24     38.38


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    **************************           *********************************
    OCT 15 TO APR 15 =   2.60              ARTR             198.15   222.12
    APR 15 TO JULY 1 =   3.35              OPPO              25.44    28.52
    JULY 1 TO SEPT 1 =   1.80
    SEPT 1 TO OCT 15 =   3.20
    SEASON TOTAL     = 10.95
    LONG TERM AVERAGE=   8.64

                               TOTAL SHRUB PRODUCTION =  223.59  250.65


                                     TOTAL PRODUCTION =  257.83  289.03
                                     ******************************
 2005.   DUTCH NICK     21 JULY        1982      IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         20
**********************************************************************
   6  SHRUBS
        CELA        .20      1.
        CPPO       5.25     11.
   3  PER GRASS
        BOGR       8.05     19.   43.31    2.17     .27 207.96   233.12
        CRHY        .14      1.    6.73     .34    2.40  32.31    36.22
        POSE        .11      2.     .71     .04     .32   3.40     3.81
                  TOTAL PERENNIAL GRASS PRODUCTION = 243.67   273.15
   4  ANN FORBS
        CHAL        .01      1.
        LEDE        .01      1.
                 ANNUAL FORBS =     .48     .02    2.40   2.30     2.58

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 245.97   275.73


         PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
         RAIN GAUGE                     AND WOODY MAT FORM PLANTS
       **************************       ***********************************
        OCT 15 TO APR 15 =  1.41          OPPO              25.30   28.36
        APR 15 TO JULY 1 =  2.49
        JULY 1 TO SEPT 1 =  1.65
        SEPT 1 TO OCT 15 =  2.18
        SEASON TOTAL     =  7.73
        LONG TERM AVERAGE=  7.21

                               TOTAL SHRUB PRODUCTION =   25.30   28.36


                                     TOTAL PRODUCTION =  271.27  304.09
                                     ***********************************
   2005.   DUTCH NICK    21 JULY       1982     OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR      3.75     1.
         OPPO       .27     6.
    3  PER GRASS
         BOGR     11.35    20.  23.19   1.16     .10 111.35   124.82
         POSE       .42    10.    .73    .04     .09   3.50     3.92
                 TOTAL PERENNIAL GRASS PRODUCTION = 114.85   128.75

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 114.85   128.75


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    **************************          ***********************************
     OCT 15 TO APR 15 =  1.41             OPPO            75.73    84.89
     APR 15 TO JULY 1 =  2.49
     JULY 1 TO SEPT 1 =  1.65
     SEPT 1 TO OCT 15 =  2.18
     SEASON TOTAL     =  7.73
     LONG TERM AVERAGE=  7.21

                          TOTAL SHRUB PRODUCTION =   75.73    84.89


                                TOTAL PRODUCTION =  190.58   213.64
                                **********************************
    404.   FARSON        28 JULY       1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARHO       .43      2.
         ARTR      8.85      9.
         CELA      2.30      4.
         CHVI      2.85      3.
         PHHO      1.90      6.
    3  PER GRASS
         AGSM       .23     13.   1.72    .09    .38   8.25    9.25
         CAEL       .02      1.    .13    .01    .43    .62     .70
         POSE       .22      3.    .92    .05    .21   4.41    4.94
         ORHY       .10      1.    .82    .04    .41   3.93    4.41
         SIHY       .04      3.    .32    .02    .40   1.53    1.72
         STCO       .05      1.    .20    .01    .22    .96    1.08
                 TOTAL PERENNIAL GRASS PRODUCTION =  19.70   22.08
    2  PER FORBS
         PECL       .03      1.
             PERENNIAL FORBS =   1.12    .06   2.24   5.37    6.02

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  25.07   28.10


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  1.98         ARTR          165.33  185.34
     APR 15 TO JULY 1 =  1.55         CELA             .22     .24
     JULY 1 TO SEPT 1 =  1.25         CHVI            1.93    2.16
     SEPT 1 TO OCT 15 =  2.97         OPPO            2.20    2.46
     SEASON TOTAL     =  7.75         PHHO            6.31    7.08
     LONG TERM AVERAGE=  6.69

                          TOTAL SHRUB PRODUCTION =  175.99  197.28


                                TOTAL PRODUCTION =  201.06  225.39
                                **********************************
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   404.   FARSON        28 JULY       1982     OUT NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
CODE    NAME .  PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT   COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR-  AREA
                AREA   BASE           RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARTR      15.20     14.
        CHVI        .70      4.
        PHHO        .68      5.
   3  PER GRASS
        AGSM        .55     17.   7.11     .36     .64  34.14   38.27
        CAEL        .36     11.   3.31     .17     .46  15.89   17.81
        ORHY        .20      5.   3.73     .19     .96  17.91   20.08
        POSE        .10      1.    .28     .01     .14   1.34    1.50
        SIHY        .17      5.   1.76     .09     .52   8.45    9.47
                TOTAL PERENNIAL GRASS PRODUCTION =  77.73   87.14
   2  PER FORBS
        SPCO        .01      1.
            PERENNIAL FORBS =      .09     .00     .90    .43     .48

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  78.16   87.62


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   **************************        **********************************
    OCT 15 TO APR 15 =  1.98           ANDI                2.60    2.91
    APR 15 TO JULY 1 =  1.55           ARTR               88.05   98.70
    JULY 1 TO SEPT 1 =  1.25           CELA                 .44     .49
    SEPT 1 TO OCT 15 =  2.97           CHVI                4.67    5.24
    SEASON TOTAL     =  7.75           EROV                1.41    1.59
    LONG TERM AVERAGE=  6.69           PHHO               29.87   33.48

                         TOTAL SHRUB PRODUCTION =  127.04  142.41


                               TOTAL PRODUCTION =  205.20  230.03
                               **********************************
```

```
  1007.   GRANITE MT     26 JUNE        1982     IN NATIVE

                        NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
*****************************************************************************
    6  SHRUBS
         ARTR      11.45     12.
         PHHO       1.08      7.
    3  PER GRASS
         AGSM        .76     19.    4.17      .21      .27   20.02    22.44
         KOCR        .03      1.     .04      .00      .08     .19      .21
         POFE       3.37     17.   12.83      .64      .19   61.60    69.05
         POSE        .16     17.     .59      .03      .19    2.83     3.17
                   TOTAL PERENNIAL GRASS PRODUCTION =        84.64    94.88
    2  PER FORBS
         ASPU        .04      3.
         CRAC        .02      2.
         ERPU        .03      2.
         LOOR        .01      1.
         TRGY        .10      6.
               PERENNIAL FORBS =    3.00      .15      .81   14.40    16.14

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         99.04   111.02


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    **************************        **********************************
    OCT 15 TO APR 15 =  1.61            ARTR            175.17   196.37
    APR 15 TO JULY 1 =  3.03            CHVI               .92     1.03
    JULY 1 TO SEPT 1 =  1.15            PHHO             42.81    47.99
    SEPT 1 TO OCT 15 =  2.22
    SEASON TOTAL     =  8.01
    LONG TERM AVERAGE=  8.71

                              TOTAL SHRUB PRODUCTION =  218.91   245.39


                                    TOTAL PRODUCTION =  317.95   356.42
                                    **********************************
```

```
   1007.   GRANITE MT    26 JUNE       1982     CUT NATIVE    .

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.  WGT./    LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.  UNIT     PER   PER
                 CENT   PLOT   GMS/20  /PLOT COVER    ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ANDI       .03     2.
         ARTR     10.88    13.
         CHVI       .80     4.
         PHHO       .85    10.
    3  PER GRASS
         AGSM       .61    16.   6.58    .33    .54  31.59   35.41
         POFE      2.57    20.  15.55    .78    .30  74.66   83.69
         POSE       .78    20.   4.65    .23    .30  22.32   25.02
                 TOTAL PERENNIAL GRASS PRODUCTION = 128.57  144.13
    2  PER FORBS
         AGGL       .01     1.
         ASPU       .19     4.
         ERPU       .13     4.
         TRGY       .14     9.
             PERENNIAL FORBS =   1.83    .09    .20   8.78    9.84

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 137.35  153.97


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  1.61         ARTR          203.08  227.65
     APR 15 TO JULY 1 =  3.03         CHVI             .04     .04
     JULY 1 TO SEPT 1 =  1.15         PHHO           29.38   32.94
     SEPT 1 TO OCT 15 =  2.22
     SEASON TOTAL     =  8.01
     LONG TERM AVERAGE=  8.71

                          TOTAL SHRUB PRODUCTION =  232.50  260.63


                                TOTAL PRODUCTION =  369.85  414.60
                                **********************************
   1007.   GRANITE MT    27 JUNE       1982     IN SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ANDI       .02     1.
         ARTR      9.75     3.
         CHVI      1.75     1.
         PHHO       .24     4.
    3  PER GRASS
         AGSM       .82    16.  11.76    .59    .71  56.46   63.29
         POFE      3.69    18.  29.13   1.46    .40 139.87  156.79
         POSE       .08    18.    .68    .03    .40   3.26    3.65
                 TOTAL PERENNIAL GRASS PRODUCTION = 199.59  223.74
    2  PER FORBS
         ASPU       .01     1.
         CACH       .08     2.
         CRAC       .27     3.
         TRGY       .04     5.
             PERENNIAL FORBS =   2.82    .14    .36  13.54   15.18

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 213.13  238.92


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
     **************************     ***********************************
     OCT 15 TO APR 15 =  1.61        ARTR             92.19  103.34
     APR 15 TO JULY 1 =  3.03        CHVI              1.15    1.29
     JULY 1 TO SEPT 1 =  1.15        PHHO              6.24    7.00
     SEPT 1 TO OCT 15 =  2.22
     SEASON TOTAL     =  8.01
     LONG TERM AVERAGE=  8.71

                          TOTAL SHRUB PRODUCTION =   99.58  111.63


                                TOTAL PRODUCTION =  312.71  350.55
                                **********************************
   1007.   GRANITE MT     28 JUNE      1982     OUT SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR     11.36    10.
         CHVI      1.50     5.
         PHHO      1.10     6.
    3  PER GRASS
         AGSM       .76    18.  11.96    .60    .79  57.42    64.37
         POFE      2.36    19.  12.76    .64    .27  61.26    68.67
         POSE       .94    19.   5.10    .26    .27  24.48    27.44
                 TOTAL PERENNIAL GRASS PRODUCTION = 143.16   160.48
    2  PER FORBS
         ASPU       .05     3.
         CRAC       .02     2.
         ERPU       .06     2.
         LOCR       .02     2.
             PERENNIAL FORBS =   1.66    .08    .64   7.97     8.93

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 151.13   169.42


      PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    **************************       ***********************************
     OCT 15 TO APR 15 =  1.61         ARTR         156.56   175.50
     APR 15 TO JULY 1 =  3.03         CHVI            .83      .93
     JULY 1 TO SEPT 1 =  1.15         PHHO          27.93    31.31
     SEPT 1 TO OCT 15 =  2.22
     SEASON TOTAL     =  8.01
     LONG TERM AVERAGE=  8.71

                          TOTAL SHRUB PRODUCTION =  185.31   207.73


                                TOTAL PRODUCTION =  336.44   377.15
                                ***********************************
    901.   HAL EXC 1      8 JULY       1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X10
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./  LBS    KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT   PER    PER
                 CENT   PLOT   GMS/20  /PLOT  COVER  ACRE   HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ATGA     14.00    20. 366.96  18.35   1.31 176.20  197.52
         OPPO       .05     1.
    3  PER GRASS
         SIHY      1.22    20.  81.25   4.06   3.34  39.01   43.73
                 TOTAL PERENNIAL GRASS PRODUCTION =  39.01   43.73
    2  PER FORBS
         UNK        .00     3.
    4  ANN FORBS
         LARE       .01     9.
         LEDE       .00     2.
         EUSE       .00     4.
                ANNUAL FORBS =     .90    .05   3.75    .43     .48

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 215.64  241.73


      PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    **************************       **********************************
     OCT 15 TO APR 15 =  1.58          OPPO           11.19   12.55
     APR 15 TO JULY 1 =  2.45
     JULY 1 TO SEPT 1 =  1.51
     SEPT 1 TO OCT 15 =   .68
     SEASON TOTAL     =  6.22
     LONG TERM AVERAGE=  5.50

                          TOTAL SHRUB PRODUCTION =   11.19   12.55


                                TOTAL PRODUCTION =  226.83  254.28
                                **********************************
```

```
  905.   HAL EXC  2     8 JULY        1982      IN NATIVE

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X10
PLANT    PLANT     AVE.    1X1      TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME      PER-    ABS.     WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT     GMS/20   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.    SQ.FT.   OCCUR-   AREA
                   AREA    BASE              RENCES
                           20
***********************************************************************
   6  SHRUBS
        ATGA          6.91      20. 249.75   12.49     1.81  119.92   134.43
        CPPO           .06       3.
   3  PER GRASS
        POSE           .71      14.    5.09     .25      .36  24.44    27.40
        SIHY           .33      12.    3.20     .16      .48  15.36    17.22
                   TOTAL PERENNIAL GRASS PRODUCTION =         39.80    44.62

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        159.72   179.05


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
   **************************          ************************************
    OCT 15 TO APR 15 =   1.45            OPPO                 22.61    25.34
    APR 15 TO JULY 1 =   2.48
    JULY 1 TO SEPT 1 =   1.83
    SEPT 1 TO OCT 15 =    .80
    SEASON TOTAL     =   6.56
    LONG TERM AVERAGE=   6.09

                                TOTAL SHRUB PRODUCTION =      22.61    25.34


                                      TOTAL PRODUCTION =    182.33   204.39
                                      **********************************
  903.   HAL EXC  3     8 JULY       1982     IN NATIVE

                     NUMBER OF PLOTS = 20
                        PLOT SIZE 1X10
PLANT   PLANT   AVE.    1X1    TOTAL   AVE.    WGT./   LBS   KGS
CODE    NAME    PER-    ABS.   WGT.    WGT.    UNIT    PER   PER
                CENT    PLOT   GMS/20  /PLOT   COVER   ACRE  HA.
                COVER   FREQ.  SQ.FT.  OCCUR-  AREA
                AREA    BASE           RENCES
                        20
*********************************************************************
   6  SHRUBS
        ATGA     13.18     20. 511.32  25.57   1.94 245.52  275.23
        ARSP       .15      1.
        OPPO       .06      3.
   3  PER GRASS
        SIHY       .12      4.   2.77    .14   1.20  13.30   14.91
                TOTAL PERENNIAL GRASS PRODUCTION =  13.30   14.91
   2  PER FORBS
        SILI       .01      1.
            PERENNIAL FORBS =     .09    .00    .45    .43     .48

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 259.25  290.62


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
  **************************         ********************************
   OCT 15 TO APR 15 =  1.48            OPPO             15.17   17.01
   APR 15 TO JULY 1 =  2.37
   JULY 1 TO SEPT 1 =  1.53
   SEPT 1 TO OCT 15 =   .48
   SEASON TOTAL     =  5.86
   LONG TERM AVERAGE=  5.63

                        TOTAL SHRUB PRODUCTION =   15.17   17.01


                             TOTAL PRODUCTION =  274.42  307.63
                             ***********************************
   910.   HAL PAST 6     8 JULY        1982      INSIDE

                       NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT     AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME      PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA   BASE             RENCES
                          20
*********************************************************************
    6  SHRUBS
         ATGA      9.74     20. 211.55  10.58    1.09 101.57  113.86
         OPPO      1.00      1.
    3  PER GRASS
         SIHY       .22      8.   1.67    .08     .39   8.01    8.98
                   TOTAL PERENNIAL GRASS PRODUCTION =   8.01    8.98
    4  ANN FORBS
         LARE       .09      3.
         LEDE       .01      2.
                  ANNUAL FORBS =   .45    .02     .24   2.16    2.42

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 111.74  125.26


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    *************************           *********************************
     OCT 15 TO APR 15 =  1.48             OPPO              2.87    3.22
     APR 15 TO JULY 1 =  2.37
     JULY 1 TO SEPT 1 =  1.53
     SEPT 1 TO OCT 15 =   .48
     SEASON TOTAL     =  5.86
     LONG TERM AVERAGE=  5.63

                           TOTAL SHRUB PRODUCTION =     2.87    3.22


                                 TOTAL PRODUCTION =  114.61  128.48
                                 ***********************************
     911.    HAL PAS 7A      6 JULY         1982      INSIDE

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
   PLANT    PLANT     AVE.   1X1     TOTAL    AVE.    WGT./    LBS     KGS
   CODE     NAME      PER-   ABS.    WGT.     WGT.    UNIT     PER     PER
                      CENT   PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                      COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                      AREA   BASE             RENCES
                             20
***********************************************************************
     6  SHRUBS
          ATGA       0.00       0.  430.35   21.52    0.00  206.64  231.64
     3  PER GRASS
          SIHY       0.00       0.     .97     .05    0.00    4.65    5.21
                    ANNUAL FORBS =     .11     .01    0.00     .52     .58

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 211.81  237.44


        PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
        RAIN GAUGE                      AND WOODY MAT FORM PLANTS
     **************************         **********************************
      OCT 15 TO APR 15 =  1.48            OPPO              24.87   27.88
      APR 15 TO JULY 1 =  2.37
      JULY 1 TO SEPT 1 =  1.53
      SEPT 1 TO OCT 15 =   .48
      SEASON TOTAL     =  5.86
      LONG TERM AVERAGE=  5.63

                                TOTAL SHRUB PRODUCTION =   24.87   27.88


                                      TOTAL PRODUCTION =  236.68  265.32
                                      **********************************
```

```
    913.  HORSECREEK    22 JULY        1982      IN AGSM

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR     6.75    8.
         CHVI      .25    2.
         OPPO      .40    1.
         PHHO      .14    2.
    3  PER GRASS
         AGSM     2.02   20.    63.47   3.17   1.57 304.76  341.64
         POSE      .38    6.     2.28    .11    .30  10.94   12.26
                 TOTAL PERENNIAL GRASS PRODUCTION = 315.70  353.90
    2  PER FORBS
         SPCO      .01    1.
             PERENNIAL FORBS =    .11    .01   1.10    .52     .58
    5  ANN GRASS
         BRTE      .08    8.
              ANNUAL GRASSES =    .48    .02    .30   2.30    2.58
    4  ANN FORBS
         DEPI      .01    1.
                ANNUAL FORBS =    .11    .01   1.10    .52     .58

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 319.04  357.64


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        ***********************************
     OCT 15 TO APR 15 =  4.08           ARTR          239.58  268.57
     APR 15 TO JULY 1 =  4.36           OPPO           36.80   41.25
     JULY 1 TO SEPT 1 =  1.58           PHHO            3.16    3.54
     SEPT 1 TO OCT 15 =  3.80
     SEASON TOTAL     = 13.82
     LONG TERM AVERAGE= 11.23

                          TOTAL SHRUB PRODUCTION =  279.54  313.36


                                TOTAL PRODUCTION =  598.58  671.00
                                **********************************
    913.   HORSE CRK     22 JULY       1982     CUT AGSM

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
         .       COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR     19.01    11.
         CHVI       .15     4.
         OPPO       .30     1.
         PHHO       .22     5.
    3  PER GRASS
         AGSM      1.08    19.  23.89   1.19   1.11 114.71  128.59
         POSE       .18     3.    .29    .01    .08   1.39    1.56
                 TOTAL PERENNIAL GRASS PRODUCTION = 116.10  130.15
    2  PER FORBS
         SPCO       .02     2.
             PERENNIAL FORBS =    .37    .02    .93   1.77    1.98
    4  ANN FORBS
         CHAL       .01     1.
         LEDE       .01     1.
                ANNUAL FORBS =    .04    .00    .20    .19     .21

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 118.06  132.35



      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  4.08         ARTR          285.03  319.52
     APR 15 TO JULY 1 =  4.36         OPPO           23.64   26.50
     JULY 1 TO SEPT 1 =  1.58         PHHO            9.31   10.43
     SEPT 1 TO OCT 15 =  3.80         XASA           24.54   27.50
     SEASON TOTAL      = 13.82
     LONG TERM AVERAGE= 11.23

                          TOTAL SHRUB PRODUCTION =  342.51  383.95


                                TOTAL PRODUCTION =  460.57  516.30
                                **********************************
    913.   HORSE CRK     22 JULY      1982      IN AGSP

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      9.80    7.
         CHVI       .02    2.
         OPPO      2.45    6.
         PHHO       .15    1.
    3  PER GRASS
         AGSP      3.47   20.  99.04    4.95   1.43 475.55  533.09
         POSE       .44    5.   1.95     .10    .22   9.36   10.49
                 TOTAL PERENNIAL GRASS PRODUCTION = 484.91  543.58
    2  PER FORBS
         ALTE       .05    2.
             PERENNIAL FORBS =    .01    .00    .01    .04     .04
    4  ANN FORBS
         DEPI       .01    2.
                ANNUAL FORBS =    .15    .01    .75    .72     .81

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 485.67  544.44


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  4.08        ARTR           133.33  149.46
     APR 15 TO JULY 1 =  4.36        HAAC             1.05    1.18
     JULY 1 TO SEPT 1 =  1.58        OPPO            37.45   41.98
     SEPT 1 TO OCT 15 =  3.80        PHHO             3.67    4.12
     SEASON TOTAL     = 13.82        XASA             5.01    5.62
     LONG TERM AVERAGE= 11.23

                          TOTAL SHRUB PRODUCTION =  180.52  202.36


                                TOTAL PRODUCTION =  666.19  746.80
                                **********************************
    913.    HORSE CRK      22 JULY        1982      CUT AGSP

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X1
  PLANT     PLANT     AVE.     1X1      TOTAL     AVE.     WGT./     LBS     KGS
  CODE      NAME      PER-     ABS.     WGT.      WGT.     UNIT      PER     PER
                      CENT     PLOT     GMS/20    /PLOT    COVER     ACRE    HA.
                      COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                      AREA     BASE               RENCES
                               20
*********************************************************************************
    6   SHRUBS
          ARTR      17.30     13.
          CHVI       6.05      7.
          OPPO        .60      1.
          PHHO        .55      5.
    3   PER GRASS
          AGSP       1.24     18.   15.01      .75      .61    72.07    80.79
          POSE        .52      9.    2.15      .11      .21    10.32    11.57
          SIHY        .03      1.     .33      .02      .55     1.58     1.77
                    TOTAL PERENNIAL GRASS PRODUCTION =         83.97    94.13
    2   PER FORBS
          ASPU        .01      1.
          SPCO        .02      2.
               PERENNIAL FORBS =      .26      .01      .65     1.24     1.39
    4   ANN FORBS
          DEPI        .01      1.
                   ANNUAL FORBS =     .02      .00      .20      .09      .10

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =             85.30    95.62


       PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
       RAIN GAUGE                         AND WOODY MAT FORM PLANTS
     **************************           ***********************************
      OCT 15 TO APR 15 =   4.08             ARTR            268.23   300.69
      APR 15 TO JULY 1 =   4.36             OPPO             30.67    34.38
      JULY 1 TO SEPT 1 =   1.58             PHHO             12.59    14.11
      SEPT 1 TO OCT 15 =   3.80             XASA            138.19   154.91
      SEASON TOTAL     =  13.82
      LONG TERM AVERAGE=  11.23

                              TOTAL SHRUB PRODUCTION =  449.68   504.09


                                    TOTAL PRODUCTION =  534.98   599.71
                                    **********************************
```

```
   914.   KANE DEER      22 JULY        1982      IN NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER     PER
                   CENT   PLOT   GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                   AREA   BASE            RENCES
                          20
***************************************************************************
   6  SHRUBS
         ARNO         .01      1.
         EROV         .05      1.
         HYAC         .14      3.
         JUOS       13.75      5.
         PHHC         .11      2.
         XASA         .03      1.
   3  PER GRASS
         AGGR         .28      5.    5.39     .27      .96   25.88    29.01
         FEID         .03      1.     .08     .00      .16     .38      .43
                   TOTAL PERENNIAL GRASS PRODUCTION =      26.26    29.44
   2  PER FORBS
         ERCA         .53      6.
         GICO         .04      2.
                PERENNIAL FORBS =    1.95     .10      .17    9.36    10.49
   4  ANN FORBS
         LARE         .01      1.
                   ANNUAL FORBS =     .09     .00      .45     .43      .48

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =     36.05    40.41


     PRECIPITATION DATA
     RAIN GAUGE
   **************************
     OCT 15 TO APR 15 =   4.18
     APR 15 TO JULY 1 =   5.92
     JULY 1 TO SEPT 1 =   2.31
     SEPT 1 TO OCT 15 =   2.00
     SEASON TOTAL     = 14.41
     LONG TERM AVERAGE= 12.12
```

```
  914.    KANE DEER     22 JULY       1982     OUT NATIVE

                    NUMBER OF PLOTS = 20
                     PLOT SIZE 1X1
PLANT  PLANT  AVE.  1X1    TOTAL  AVE.   WGT./  LBS   KGS
CODE   NAME   PER-  ABS.   WGT.   WGT.   UNIT   PER   PER
              CENT  PLOT   GMS/20 /PLOT  COVER  ACRE  HA.
              COVER FREQ.  SQ.FT. OCCUR- AREA
              AREA  BASE          RENCES
                    20
*****************************************************************
  6  SHRUBS
       ANDI       .01    1.
       HYAC       .08    3.
       JUOS      5.40    3.
       PHHO       .03    1.
       XASA       .09    3.
  3  PER GRASS
       AGSP       .34    7.  4.73    .24    .70  22.71   25.46
              TOTAL PERENNIAL GRASS PRODUCTION =  22.71   25.46
  2  PER FORBS
       EROC       .13    2.
         PERENNIAL FORBS =    .91    .05    .36   4.36    4.89
  4  ANN FORBS
       CHEN       .01    1.
       LARE       .02    4.
       LEDE       .05    6.
              ANNUAL FORBS =  1.91    .10   1.27   9.17   10.28

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  36.24   40.63


   PRECIPITATION DATA
   RAIN GAUGE
  **************************
   OCT 15 TO APR 15 =  4.18
   APR 15 TO JULY 1 =  5.92
   JULY 1 TO SEPT 1 =  2.31
   SEPT 1 TO OCT 15 =  2.00
   SEASON TOTAL     = 14.41
   LONG TERM AVERAGE= 12.12
   914.   KANE DEER     22 JULY       1982     IN SPRAY

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARFR      4.00     6.
        ARLO       .05     1.
        ARNO       .53     2.
        HYAC       .20     2.
        PHHO       .43     3.
        RHTR      4.75     1.
        XASA      6.16    10.
   3  PER GRASS
        AGGR       .70     9.  31.77   1.59   2.29 152.54  171.00
        POSE       .14     2.    .32    .02    .11   1.53    1.72
        SIHY       .21     3.   3.20    .16    .78  15.36   17.22
                TOTAL PERENNIAL GRASS PRODUCTION = 169.43  189.93
   2  PER FORBS
        COPA       .03     2.
        EROC       .41     6.
        ERCO       .88     8.
        GICO       .03     1.
        TRDU       .01     1.
            PERENNIAL FORBS =  20.02   1.00    .75  96.12  107.75
   5  ANN GRASS
        BRTE       .08     5.
             ANNUAL GRASSES =   1.99    .10   1.33   9.55   10.71
   4  ANN FORBS
        LARE       .07     7.
        LEDE       .08     2.
               ANNUAL FORBS =   2.17    .11    .75  10.41   11.67

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 285.51  320.06


    PRECIPITATION DATA
    RAIN GAUGE
  **************************
    OCT 15 TO APR 15 =  4.18
    APR 15 TO JULY 1 =  5.92
    JULY 1 TO SEPT 1 =  2.31
    SEPT 1 TO OCT 15 =  2.00
    SEASON TOTAL     = 14.41
    LONG TERM AVERAGE= 12.12
    914.   KANE DEER    22 JULY      1982     CUT SPRAY

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
 PLANT   PLANT  AVE.   1X1    TOTAL  AVE.   WGT./   LBS  KGS
 CODE    NAME   PER-   ABS.   WGT.   WGT.   UNIT    PER  PER
                CENT   PLOT   GMS/20 /PLOT  COVER   ACRE HA.
                COVER  FREQ.  SQ.FT. OCCUR- AREA
                AREA   BASE          RENCES
                       20
********************************************************************
    6  SHRUBS
         ANDI      .01    2.
         ARFR      .15    1.
         HYAC      .06    6.
         JUDS     4.00    2.
         PHHO      .55    3.
         XASA     9.35   11.
    3  PER GRASS
         AGGR     1.26   10.  13.49    .67    .54  64.77  72.61
         POSE      .05    1.    .08    .00    .08    .38    .43
                TOTAL PERENNIAL GRASS PRODUCTION = 65.15  73.03
    2  PER FORBS
         ERCA      .10    6.
         GICO      .05    6.
         PECL      .04    2.
            PERENNIAL FORBS =  5.20    .26   1.44  24.96  27.98
    5  ANN GRASS
         BRTE      .06    5.
             ANNUAL GRASSES =  1.19    .06   1.08   5.71   6.40
    4  ANN FORBS
         LARE      .04    6.
         LEDE      .22   13.
               ANNUAL FORBS =  2.20    .11    .43  10.56  11.84

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 106.38  119.25


     PRECIPITATION DATA
     RAIN GAUGE
   *************************
     OCT 15 TO APR 15 =  4.18
     APR 15 TO JULY 1 =  5.92
     JULY 1 TO SEPT 1 =  2.31
     SEPT 1 TO OCT 15 =  2.00
     SEASON TOTAL     = 14.41
     LONG TERM AVERAGE= 12.12
```

```
  921.   KANE GRI       22  JULY       1982      IN SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*************************************************************************
   6  SHRUBS
        ARNO       9.57      9.
        JUOS       3.00      1.
        PHMU        .10      1.
        XASA        .15      1.
   3  PER GRASS
        AGGR       4.03     18.  98.50    4.93    1.22 472.96  530.19
        POSE        .26      6.   1.10     .06     .21   5.26    5.92
                  TOTAL PERENNIAL GRASS PRODUCTION = 478.24  536.11
   2  PER FORBS
        GICO        .12      4.
        PELA        .05      1.
        TRDU        .01      1.
              PERENNIAL FORBS =   6.75     .34    1.88  32.41   36.33
   5  ANN GRASS
        BRTE        .01      2.
               ANNUAL GRASSES =    .36     .02    1.80   1.72    1.93
   4  ANN FORBS
        DEPI        .06     10.
        LARE        .01      1.
                 ANNUAL FORBS =    .77     .04     .64   3.69    4.14

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 516.06  578.50


    PRECIPITATION DATA
    RAIN GAUGE
  **************************
    OCT 15 TO APR 15 =  3.77
    APR 15 TO JULY 1 =  5.83
    JULY 1 TO SEPT 1 =  2.16
    SEPT 1 TO OCT 15 =  2.22
    SEASON TOTAL     = 13.98
    LONG TERM AVERAGE= 12.56
   921.   KANE GRI       22 JULY        1982      OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*************************************************************************
   6  SHRUBS
        ARNO       8.00      7.
        JUCS      23.50     10.
        PHHO        .03      1.
        XASA        .04      1.
   3  PER GRASS
        AGGR        .07      4.      .59     .03     .45    2.83     3.17
        POSE        .03      1.      .04     .00     .08     .19      .21
                 TOTAL PERENNIAL GRASS PRODUCTION =         3.02     3.39
   2  PER FORBS
        ARHO        .02      1.
        GICO        .08      2.
        PELA        .04      1.
             PERENNIAL FORBS =     1.99     .10     .77    9.55    10.71

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        12.57    14.09


    PRECIPITATION DATA
    RAIN GAUGE
  ***************************
    OCT 15 TO APR 15 =  3.77
    APR 15 TO JULY 1 =  5.83
    JULY 1 TO SEPT 1 =  2.16
    SEPT 1 TO OCT 15 =  2.22
    SEASON TOTAL     = 13.98
    LONG TERM AVERAGE= 12.56
   1502.  KIRBYCREEK      14 JULY       1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL  AVE.   WGT./  LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.   WGT.   UNIT   PER   PER
                 CENT   PLOT   GMS/20 /PLOT  COVER  ACRE  HA.
                 COVER  FREQ.  SQ.FT. OCCUR- AREA
                 AREA   BASE          RENCES
                        20
***********************************************************************
    6  SHRUBS
         CPPG      .70     1.
         SAVE     C.00     0.
    3  PER GRASS
         AGSM      .72    15.  14.87   .74   1.03  71.40   80.04
                 TOTAL PERENNIAL GRASS PRODUCTICN =  71.40   8C.04

          NO BRTE---HAIL DAMAGE


           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTICN =  71.40   6C.04



      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        **********************************
     OCT 15 TO APR 15 =  2.55          SAVE           11.81   13.24
     APR 15 TO JULY 1 =  2.55
     JULY 1 TO SEPT 1 =  2.27
     SEPT 1 TO OCT 15 =  3.65
     SEASON TOTAL     = 11.02
     LONG TERM AVERAGE=  9.92

                          TOTAL SHRUB PRODUCTICN =   11.81   13.24


                                TOTAL PRODUCTICN =  83.21   93.28
                                **********************************
   1502.   KIRBYCREEK    14 JULY       1982     OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         SAVE     12.70     8.
    3  PER GRASS
         AGSM       .15     6.    2.96    .15   1.02  14.21   15.93
                 TOTAL PERENNIAL GRASS PRODUCTION =  14.21   15.93
    5  ANN GRASS
         BRTE       .09    3.      HAIL DAMAGE
         VUCC       .03    3.
              ANNUAL GRASSES =    .48    .02    .20   2.30    2.58
    4  ANN FORBS
         LEPE       .43    12.
                ANNUAL FORBS =   1.53    .08    .18   7.34    8.23

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  23.85   26.74


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  2.55         SAVE           29.14   32.67
     APR 15 TO JULY 1 =  2.55
     JULY 1 TO SEPT 1 =  2.27
     SEPT 1 TO OCT 15 =  3.65
     SEASON TOTAL     = 11.02
     LONG TERM AVERAGE=  9.92

                          TOTAL SHRUB PRODUCTION =   29.14   32.67


                                TOTAL PRODUCTION =   52.99   59.41
                                **********************************
   1001.   LANDER ANT    23 JULY       1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL  AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.   WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20 /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT. OCCUR- AREA
                 AREA   BASE          RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR    10.70     8.
         OPPO     1.90     3.
    3  PER GRASS
         AGSM      .10     8.     .76    .04    .38   3.64    4.08
         BOGR      .63     5.    2.63    .13    .21  12.62   14.15
         CAEL      .01     2.     .03    .00    .15    .14     .16
         POSE      .35     6.     .96    .05    .14   4.60    5.16
         STCO     1.39    14.    9.39    .47    .34  45.08   50.53
                 TOTAL PERENNIAL GRASS PRODUCTION =  66.08   74.08
    2  PER FORBS
         SPCO      .01     2.
             PERENNIAL FORBS =    .12    .01    .60    .57     .64

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  66.65   74.71


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  1.99         ARTR             106.39  119.26
     APR 15 TO JULY 1 =  2.37         CHVI                .06     .07
     JULY 1 TO SEPT 1 =   .40         OPPO              21.90   24.55
     SEPT 1 TO OCT 15 =  4.65         PHHO               1.89    2.12
     SEASON TOTAL     =  9.41
     LONG TERM AVERAGE=  8.56

                          TOTAL SHRUB PRODUCTION =  130.24  146.00


                                TOTAL PRODUCTION =  196.89  220.71
                                **********************************
   1001.   LANDER ANT    23 JULY       1982     OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR     16.30    16.
         OPPO      1.20     5.
    3  PER GRASS
         AGSM       .40    12.   1.80     .09    .23   8.64    9.69
         POSE       .79    12.   2.03     .10    .13   9.74   10.92
         STCO       .31     7.   1.94     .10    .32   9.31   10.44
                 TOTAL PERENNIAL GRASS PRODUCTION =  27.69   31.04
    2  PER FORBS
         SPCO       .06     5.
             PERENNIAL FORBS =   1.08     .05    .98   5.18    5.81

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  32.87   36.85


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  1.99         ARTR             164.63  184.55
     APR 15 TO JULY 1 =  2.37         OPPO              31.29   35.08
     JULY 1 TO SEPT 1 =   .40         PHHC                .89    1.00
     SEPT 1 TO OCT 15 =  4.65
     SEASON TOTAL     =  9.41
     LONG TERM AVERAGE=  8.56

                          TOTAL SHRUB PRODUCTION =  196.82  220.63


                                TOTAL PRODUCTION =  229.69  257.48
                                **********************************
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  1003.   LOWER GOVT    26 JUNE       1982     IN NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARTR     21.85    15.
        OPPO       .31     3.
   3  PER GRASS
        AGSM       .25    14.   2.47    .12    .50  11.86   13.30
        POSE       .31     6.   1.34    .07    .22   6.43    7.21
        STCO      1.20    14.  17.67    .88    .74  84.84   95.11
                TOTAL PERENNIAL GRASS PRODUCTION = 103.13  115.61
   2  PER FORBS
        SPCO       .03     1.
            PERENNIAL FORBS =    .28    .01    .56   1.34    1.50
   5  ANN GRASS
        BRTE       .01     1.
             ANNUAL GRASSES =    .08    .00    .80    .38     .43
   4  ANN FORBS
        LEDE       .01     2.
               ANNUAL FORBS =   0.00   0.00   0.00   0.00    0.00

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 104.85  117.54


     PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                    AND WOODY MAT FORM PLANTS
   **************************      **********************************
    OCT 15 TO APR 15 =  2.07         ARTR          346.33  388.24
    APR 15 TO JULY 1 =  2.80         OPPO            1.05    1.18
    JULY 1 TO SEPT 1 =   .80
    SEPT 1 TO OCT 15 =  2.35
    SEASON TOTAL     =  8.02
    LONG TERM AVERAGE= 10.12

                         TOTAL SHRUB PRODUCTION =  347.38  389.41


                               TOTAL PRODUCTION =  452.23  506.95
                               **********************************
  1003.   LOWER GOVT    26 JUNE       1982     OUT NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
**********************************************************************
   6  SHRUBS
        ARTR     26.10     16.
   3  PER GRASS
        AGSM       .63      18.   6.58     .33      .52  31.59   35.41
        KOCR       .18       3.   1.43     .07      .41   6.86    7.69
        POSE       .36      10.   1.63     .08      .23   7.82    8.77
        STCO       .19       5.   1.57     .08      .41   7.53    8.44
                TOTAL PERENNIAL GRASS PRODUCTION =  53.80   60.31
   2  PER FORBS
        ERPU       .03       1.
        SPCC       .13       7.
   5  ANN GRASS
        BRTE       .02       6.
             ANNUAL GRASSES =    .03     .00      .07    .14     .16

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  53.94   60.47


     PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                     AND WOODY MAT FORM PLANTS
   **************************       **********************************
    OCT 15 TO APR 15 =  2.07         ARTR          325.20  364.55
    APR 15 TO JULY 1 =  2.80         CHVI            1.02    1.14
    JULY 1 TO SEPT 1 =   .80         OPPO            5.07    5.69
    SEPT 1 TO OCT 15 =  2.35
    SEASON TOTAL     =  8.02
    LONG TERM AVERAGE= 10.12

                         TOTAL SHRUB PRODUCTION =  331.29  371.38


                               TOTAL PRODUCTION =  385.23  431.85
                               **********************************
  1003.   LOWER GOVT    26 JUNE        1982      IN SPRAY

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
**********************************************************************
   3  PER GRASS
       AGSM          .56     19.  11.20     .56      .99  53.77    60.28
       POSE          .17      5.   1.13     .06      .33   5.42     6.08
       STCO         2.64     16.  61.12    3.06     1.16 293.47   328.98
                  TOTAL PERENNIAL GRASS PRODUCTION = 352.66   395.33
   2  PER FORBS
       SPCO          .09      2.
                PERENNIAL FORBS =   1.22     .06      .68   5.85     6.56
   5  ANN GRASS
       BRTE          .34     15.
                 ANNUAL GRASSES =  11.42     .57     1.70  54.83    61.46
   4  ANN FORBS
       CHDE          .01      1.
                   ANNUAL FORBS =    .06     .00      .30    .28      .31

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 413.62   463.67


    PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    *************************       *********************************
   OCT 15 TO APR 15 =   2.07          ARTR                 7.23     8.11
   APR 15 TO JULY 1 =   2.80          OPPO                 8.40     9.42
   JULY 1 TO SEPT 1 =    .80
   SEPT 1 TO OCT 15 =   2.35
   SEASON TOTAL     =   8.02
   LONG TERM AVERAGE=  10.12

                         TOTAL SHRUB PRODUCTION =   15.63    17.53


                               TOTAL PRODUCTION =  429.25   481.19
                               *********************************
   1005.   LOWER GOVT    26 JUNE       1982     OUT SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
************************************************************************
    6  SHRUBS
         ARTR       .41     5.
    3  PER GRASS
         AGSM       .63    18.   8.90    .45    .71  42.73   47.90
         KOCR       .70    12.   2.56    .13    .18  12.29   13.78
         POSE       .06     5.    .37    .02    .31   1.77    1.98
         STCO      2.41    16.   9.67    .48    .20  46.43   52.05
                 TOTAL PERENNIAL GRASS PRODUCTION = 103.22  115.71
    2  PER FORBS
         ERPU       .01     1.
         SPCO       .12     2.
             PERENNIAL FORBS =    .17    .01    .07    .81     .91
    5  ANN GRASS
         BRTE       .01     1.
              ANNUAL GRASSES =    .06    .00    .30    .28     .31
    4  ANN FORBS
         CHDE       .01     1.
         UNK        .06     5.
                ANNUAL FORBS =    .18    .01    .15    .86     .96

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 105.17  117.90


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        ***********************************
     OCT 15 TO APR 15 =  2.07           ARTR           86.32   96.77
     APR 15 TO JULY 1 =  2.80
     JULY 1 TO SEPT 1 =   .80
     SEPT 1 TO OCT 15 =  2.35
     SEASON TOTAL     =  8.02
     LONG TERM AVERAGE= 10.12

                          TOTAL SHRUB PRODUCTION =   86.32   96.77


                                TOTAL PRODUCTION =  191.49  214.66
                                **********************************
   1004.   MCGRAW FLT    24 JULY       1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR     23.90    16.
         CHVI       .28     2.
         PHHO       .13     2.
    3  PER GRASS
         AGSM       .59    17.  11.76    .59   1.00  56.46   63.29
         POFE      3.92    17.   8.68    .43    .11  41.67   46.71
         POSE       .03    17.    .16    .01    .31    .76     .85
                 TOTAL PERENNIAL GRASS PRODUCTION =  98.89  110.86

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  98.89  110.86


     PRECIPITATION DATA
     RAIN GAUGE
   **************************
     OCT 15 TO APR 15 =  2.13
     APR 15 TO JULY 1 =  2.95
     JULY 1 TO SEPT 1 =  1.15
     SEPT 1 TO OCT 15 =  3.80
     SEASON TOTAL     = 10.03
     LONG TERM AVERAGE=  9.59
   1004.  MCGRAW FLT    26 JULY      1982     OUT NATIVE

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
 PLANT   PLANT  AVE.   1X1    TOTAL  AVE.   WGT./   LBS  KGS
 CODE    NAME   PER-   ABS.   WGT.   WGT.   UNIT    PER  PER
                CENT   PLOT   GMS/20 /PLOT  COVER   ACRE HA.
                COVER  FREQ.  SQ.FT. OCCUR- AREA
                AREA   BASE          RENCES
                       20
********************************************************************
    6  SHRUBS
         ARTR     10.33    15.
         PHHO      1.75     6.
    3  PER GRASS
         AGSM      .47    19.   4.68    .23   .50  22.47   25.19
         POFE     4.08    18.   8.24    .41   .10  39.56   44.35
         POSE      .22    18.    .47    .02   .11   2.25    2.52
                TOTAL PERENNIAL GRASS PRODUCTION =  64.28   72.06
    2  PER FORBS
         SPCO      .02     2.
         VIAM      .01     1.
            PERENNIAL FORBS =    .19    .01   .48    .91    1.02

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  65.19   73.08


     PRECIPITATION DATA
     RAIN GAUGE
   **************************
     OCT 15 TO APR 15 =  2.13
     APR 15 TO JULY 1 =  2.95
     JULY 1 TO SEPT 1 =  1.15
     SEPT 1 TO OCT 15 =  3.80
     SEASON TOTAL     = 10.03
     LONG TERM AVERAGE=  9.59
   920.   MED LODGE      23 JULY        1982      IN SPRAY

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
**********************************************************************
   6  SHRUBS
        ARHO2       .01      1.
        ARTR      11.90      9.
        JUOS       5.90      3.
        PHHO        .10      1.
   3  PER GRASS
        AGSP        .15      6.    1.51      .08      .52    7.25     8.13
        FEID       1.68     11.   18.48      .92      .55   86.74    99.48
        POSE        .11      2.     .34      .02      .15    1.63     1.83
        STCO        .21      5.    4.45      .22     1.06   21.36    23.94
                   TOTAL PERENNIAL GRASS PRODUCTION = 118.98   133.38
   2  PER FORBS
        SEST        .06      5.
        UNK        0.00      0.
               PERENNIAL FORBS =    .39      .02      .33    1.87     2.10
   4  ANN FORBS
        COPA2       .03      1.
        DEPI        .01      1.
        LARE        .04      7.
        LEDE        .19      8.
                 ANNUAL FORBS =    2.19      .11      .24   10.51    11.78

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 131.36   147.25


    PRECIPITATION DATA
    RAIN GAUGE
  **************************
    OCT 15 TO APR 15 =   5.73
    APR 15 TO JULY 1 =   5.87
    JULY 1 TO SEPT 1 =   1.06
    SEPT 1 TO OCT 15 =   3.42
    SEASON TOTAL     =  16.08
    LONG TERM AVERAGE=  14.33
    920.   MED LODGE     23 JULY       1982     OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      5.85    5.
         JUOC     19.05    7.
         CPPO       .30    1.
    3  PER GRASS
         AGSP       .02    1.     .18    .01    .60    .86     .96
         FEID       .06    1.     .23    .01    .19   1.10    1.23
         POSE       .12    4.   15.84    .79   6.89  76.05   85.25
         SIHY       .01    1.     .17    .01    .85    .81     .91
         STCO       .43   10.    2.42    .12    .28  11.62   13.03
                 TOTAL PERENNIAL GRASS PRODUCTION =  90.44  101.38
    2  PER FORBS
         LUAR       .01    1.
         SEST       .06    2.
         UNK        .07    2.
             PERENNIAL FORBS =    .94    .05    .36   4.51    5.06
    5  ANN GRASS
         BRTE       .01    2.
         VUOC       .01    2.
              ANNUAL GRASSES =    .20    .01    .50    .96    1.08
    4  ANN FORBS
         LARE       .06    7.
         LEDE       .17   16.
                ANNUAL FORBS =   4.53    .23   1.01  21.75   24.38

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 117.66  131.90


     PRECIPITATION DATA
     RAIN GAUGE
   **************************
     OCT 15 TO APR 15 =  5.73
     APR 15 TO JULY 1 =  5.87
     JULY 1 TO SEPT 1 =  1.06
     SEPT 1 TO OCT 15 =  3.42
     SEASON TOTAL      = 16.08
     LONG TERM AVERAGE= 14.33
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```
  2301.   MESA ANTEL    27 JULY        1982      IN NATIVE

                         NUMBER OF PLOTS = 20
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL     AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.      WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20    /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.    OCCUR-  AREA
                   AREA    BASE              RENCES
                           20
**********************************************************************
    6  SHRUBS
         ARTR      16.65     15.
         CHVI       1.13      4.
         PHHO       1.50      9.
    3  PER GRASS
         AGSM        .28     11.     2.99      .15      .54  14.35     16.09
         CRHY        .32      4.     3.33      .17      .53  15.98     17.91
         POSE        .39      6.     1.89      .09      .24   9.07     10.17
         SIHY        .29      7.     4.52      .23      .79  21.70     24.33
                   TOTAL PERENNIAL GRASS PRODUCTION =        61.10     68.49
    2  PER FORBS
         ARHO        .09      4.
         MACA        .02      2.
               PERENNIAL FORBS =     2.39      .12     1.14  11.47     12.86
    4  ANN FORBS
         ERCE        .01      1.
                  ANNUAL FORBS =      .07      .00      .70    .33       .37

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        72.90     81.72


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
   **************************          **********************************
    OCT 15 TO APR 15 =   3.30            ARTR             225.42   252.69
    APR 15 TO JULY 1 =   2.40            CELA               3.89     4.36
    JULY 1 TO SEPT 1 =   2.61            CHVI              11.40    12.78
    SEPT 1 TO OCT 15 =   4.17            ERCA               1.35     1.52
    SEASON TOTAL     =  12.48            EROV               1.56     1.74
    LONG TERM AVERAGE=   8.15            PHHO              22.03    24.69

                              TOTAL SHRUB PRODUCTION =  265.65   297.79


                                    TOTAL PRODUCTION =  338.55   379.51
                                    **********************************
   2301.    MESA ANTEL     27 JULY        1982      OUT NATIVE

                           NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
  PLANT    PLANT     AVE.     1X1     TOTAL     AVE.     WGT./    LBS    KGS
  CODE     NAME      PER-     ABS.    WGT.      WGT.     UNIT     PER    PER
                     CENT     PLOT    GMS/20    /PLOT    COVER    ACRE   HA.
                     COVER    FREQ.   SQ.FT.    OCCUR-   AREA
                     AREA     BASE              RENCES
                              20
******************************************************************************
     6   SHRUBS
           ARTR     17.65     13.
           CHVI      1.55      3.
           PHHO      1.35      6.
     3   PER GRASS
           AGSM       .72     18.     8.98      .45      .62   43.11     48.33
           CAEL       .33      9.     2.53      .13      .39   12.14     13.61
           ORHY       .30      3.     1.07      .05      .18    5.13      5.75
           POSE       .93     12.     1.99      .10      .11    9.55     10.71
           SIHY       .07      2.      .41      .02      .29    1.96      2.20
                     TOTAL PERENNIAL GRASS PRODUCTION =   71.89     80.59
     2   PER FORBS
           ARHO       .05      4.
           MACA       .02      3.
                 PERENNIAL FORBS =     .90      .05      .75    4.32      4.84

               ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   76.21     85.43


          PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
          RAIN GAUGE                      AND WOODY MAT FORM PLANTS
        **************************        ***********************************
         OCT 15 TO APR 15 =   3.30          ARTR            194.72   218.28
         APR 15 TO JULY 1 =   2.40          CELA               .89     1.00
         JULY 1 TO SEPT 1 =   2.61          CHVI             15.87    17.80
         SEPT 1 TO OCT 15 =   4.17          ERCA              5.42     6.07
         SEASON TOTAL     = 12.48           EROV              3.63     4.07
         LONG TERM AVERAGE=   8.15          OPPO              3.95     4.42
                                            PHHO             25.72    26.83

                              TOTAL SHRUB PRODUCTION =   250.19   280.47


                                    TOTAL PRODUCTION =   326.40   365.90
                                    ***********************************
   1503.   NORT BUTTE    20 JULY       1982     RELICT

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      1.75     2.
    3  PER GRASS
         AGSP      1.56     9.  22.65   1.13    .73 108.75  121.91
         BOGR       .19     5.    .74    .04    .20   3.55    3.98
         CAEL      2.36    20.  12.79    .64    .27  61.41   68.84
         POSE       .10     1.    .43    .02    .22   2.06    2.31
         STCO      1.26    11.  18.81    .94    .75  90.31  101.24
                 TOTAL PERENNIAL GRASS PRODUCTION = 266.08  298.28
    2  PER FORBS
         SPCO       .03     3.
             PERENNIAL FORBS =    .63    .03   1.05   3.02    3.39

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 269.10  301.66


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  2.06         ARTR           60.45   67.77
     APR 15 TO JULY 1 =  2.98         OPPO            3.69    4.14
     JULY 1 TO SEPT 1 =  1.34         PHHO             .09     .10
     SEPT 1 TO OCT 15 =  3.59
     SEASON TOTAL     =  9.97
     LONG TERM AVERAGE= 10.89

                          TOTAL SHRUB PRODUCTION =   64.23   72.00


                                TOTAL PRODUCTION =  333.33  373.66
                                **********************************
    104.   OWL DRAW        3 AUGUST      1982      IN ARNO

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
  PLANT    PLANT    AVE.    1X1 .   TOTAL    AVE.     WGT./    LBS     KGS
  CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                    CENT    PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                    COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                    AREA    BASE             RENCES
                            20
****************************************************************************
    6  SHRUBS
         ARNO      18.40     16.
         ARTR       2.25      1.
         CHVI        .50      2.
         HAAC        .25      1.
         PHHO        .32      4.
    3  PER GRASS
         AGSM        .13     10.     1.95      .10       .78     9.36    10.49
         AGSP        .10      3.     1.30      .07       .65     6.24     7.00
         KOCR        .04      1.     1.13      .06      1.41     5.42     6.08
         POSE       2.26     15.     4.53      .23       .10    21.75    24.38
                    TOTAL PERENNIAL GRASS PRODUCTION =          42.77    47.95
    2  PER FORBS
         ERPU        .05      6.
         VIAM        .01      2.
               PERENNIAL FORBS =      .76      .04       .71     3.74     4.19

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =           46.51    52.14


      PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    **************************            **********************************
     OCT 15 TO APR 15 =   3.20              ARNO             246.56   276.39
     APR 15 TO JULY 1 =   4.08              ARTR               1.62     1.82
     JULY 1 TO SEPT 1 =   1.60              CHVI               1.28     1.43
     SEPT 1 TO OCT 15 =   1.62              HAAC                .33      .37
     SEASON TOTAL     =  10.50              PHHO               2.06     2.31
     LONG TERM AVERAGE=   9.71

                              TOTAL SHRUB PRODUCTION =   251.85   282.33


                                    TOTAL PRODUCTION =   298.36   334.46
                                    **********************************
  104.   OWL DRAW        3 AUGUST      1982      OUT ARNO

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
PLANT    PLANT    AVE.     1X1      TOTAL     AVE.     WGT./    LBS    KGS
CODE     NAME     PER-     ABS.     WGT.      WGT.     UNIT     PER    PER
                  CENT     PLOT     GMS/20    /PLOT    COVER    ACRE   HA.
                  COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                  AREA     BASE               RENCES
                           20
*************************************************************************
   6  SHRUBS
        ARNO        3.60     9.
        ARTR        6.45    10.
        PHHO         .41    10.
   3  PER GRASS
        AGSM         .70    20.     9.31      .47      .66   44.70    50.11
        POSE         .85    16.     3.08      .15      .18   14.78    16.57
        KOCR         .02     1.      .04      .00      .13     .19      .21
                  TOTAL PERENNIAL GRASS PRODUCTION =          59.67    66.89
   2  PER FORBS
        ALCE         .02     1.
        ALTE         .06     2.
        ERPU         .14     7.
              PERENNIAL FORBS =     2.50      .13      .61   12.00    13.45
   4  ANN FORBS
        LARE         .01     1.
        LEDE         .01     1.
                ANNUAL FORBS =       .11      .01      .37     .52      .58

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            72.19    80.92


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  **************************          ***********************************
   OCT 15 TO APR 15 =   3.20            ARNO              98.43  110.35
   APR 15 TO JULY 1 =   4.08            ARTR              33.21   37.22
   JULY 1 TO SEPT 1 =   1.60            CHVI              15.63   17.52
   SEPT 1 TO OCT 15 =   1.62            HAAC                .52     .59
   SEASON TOTAL     =  10.50            PHHO              20.67   23.17
   LONG TERM AVERAGE=   9.71

                          TOTAL SHRUB PRODUCTION =  168.46  188.85


                              TOTAL PRODUCTION =  240.65  269.77
                              ***********************************
    104.   OWL DRAW       3 AUGUST     1982     IN ARTR

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARNO      3.95    3.
         ARTR     11.15   12.
         PHHO       .82    9.
    3  PER GRASS
         AGSM       .52   19.    10.87   .54    1.05  52.19   58.50
         KOCR       .07    1.      .18   .01     .13    .86     .96
         POSE      1.89   20.     9.82   .49     .26  47.15   52.86
                 TOTAL PERENNIAL GRASS PRODUCTION = 100.20  112.32
    2  PER FORBS
         AGGL       .01    1.
         ERPU       .05    5.
         TRGY       .01    1.
         VINU       .01    1.
             PERENNIAL FORBS =    1.23   .06     .82   5.90    6.61

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 106.10  118.94


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  3.20         ARNO            42.13   47.23
     APR 15 TO JULY 1 =  4.08         ARTR           118.84  133.21
     JULY 1 TO SEPT 1 =  1.60         CHVI             1.97    2.21
     SEPT 1 TO OCT 15 =  1.62         PHHO             3.33    3.73
     SEASON TOTAL     = 10.50
     LONG TERM AVERAGE=  9.71

                          TOTAL SHRUB PRODUCTION =   166.26  186.38


                                TOTAL PRODUCTION =   272.36  305.32
                                ***********************************
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  104.   OWL DRAW        3 AUGUST      1982      OUT ARTR

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.    1X1    TOTAL    AVE.    WGT./   LBS   KGS
CODE    NAME    PER-    ABS.   WGT.     WGT.    UNIT    PER   PER
                CENT    PLOT   GMS/20   /PLOT   COVER   ACRE  HA.
                COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                AREA    BASE            RENCES
                        20
***********************************************************************
   6  SHRUBS
        ARNO      1.33      2.
        ARTR      7.65      9.
        CHVI      1.20      1.
        PHHO       .65      3.
   3  PER GRASS
        AGSM       .84     18.  11.33      .57     .67  54.40     60.98
        KOCR       .10      2.    .21      .01     .11   1.00      1.12
        POSE      4.28     19.  12.17      .61     .14  58.43     65.50
                TOTAL PERENNIAL GRASS PRODUCTION = 113.83  127.60
   2  PER FORBS
        ASMI       .05      1.
        ERPU       .06      3.
        VINU       .01      1.
             PERENNIAL FORBS =     .81      .04     .34   3.88      4.35

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 117.71  131.95


   PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                       AND WOODY MAT FORM PLANTS
  **************************        **********************************
   OCT 15 TO APR 15 =  3.20          ARNO              21.91    24.56
   APR 15 TO JULY 1 =  4.08          ARTR             210.08   235.50
   JULY 1 TO SEPT 1 =  1.60          CHVI               3.03     3.40
   SEPT 1 TO OCT 15 =  1.62          PHHO              11.22    12.58
   SEASON TOTAL     = 10.50
   LONG TERM AVERAGE=  9.71

                         TOTAL SHRUB PRODUCTION =  246.25   276.04


                              TOTAL PRODUCTION =  363.96   407.99
                              ***********************************
   406.   RED WASH 2    25 JULY       1982      IN AGSM

                              NUMBER OF PLOTS = 20
                                PLOT SIZE 1X1
 PLANT    PLANT    AVE.     1X1      TOTAL    AVE.     WGT./    LBS     KGS
 CODE     NAME     PER-     ABS.     WGT.     WGT.     UNIT     PER     PER
                   CENT     PLOT     GMS/20   /PLOT    COVER    ACRE    HA.
                   COVER    FREQ.    SQ.FT.   OCCUR-   AREA
                   AREA     BASE              RENCES
                            20
***********************************************************************
   6  SHRUBS
          ARHO2      .04       2.
          ARTR     19.80      10.
          CHVI       .40       2.
          ERBR      1.15       1.
          PHHO       .98       4.
   3  PER GRASS
          AGSM       .24      14.     2.73      .14      .58   13.10    14.69
          SIHY       .04       2.      .47      .02      .59    2.25     2.52
          STCC       .81      10.     8.03      .40      .50   38.55    43.21
                   TOTAL PERENNIAL GRASS PRODUCTION =          53.90    60.42
   2  PER FORBS
          MACA       .01       1.
          PECL       .02       1.
               PERENNIAL FORBS =      3.20      .16     8.00   15.36    17.22

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =             69.26    77.64


      PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   **************************          **********************************
     OCT 15 TO APR 15 =   2.80           ARTR            108.77   121.93
     APR 15 TO JULY 1 =   1.10           CELA               .09      .10
     JULY 1 TO SEPT 1 =   2.19           CHNA              2.57     2.88
     SEPT 1 TO OCT 15 =   2.30           CHVI             16.62    18.63
     SEASON TOTAL     =   8.39           ERBR              1.52     1.70
     LONG TERM AVERAGE=   7.18           EROV              1.77     1.99
                                         PHHO             12.98    14.55
                                         TECA             11.28    12.65

                              TOTAL SHRUB PRODUCTION =   155.60   174.42


                                   TOTAL PRODUCTION =    224.86   252.06
                                   **********************************
   406.   RED WASH 2    25 JULY       1982     OUT AGSM

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           20
*********************************************************************
   6  SHRUBS
        ARTR        2.50     2.
        CHVI        2.15     5.
        ERBR        2.10    10.
        EROV         .30     1.
        PHHO         .48     5.
        TECA         .15     1.
   3  PER GRASS
        AGSM         .32    11.    3.03      .15      .48   14.54    16.30
        CRHY         .23     2.    1.18      .06      .26    5.66     6.34
        STCO        1.75    12.   15.98      .80      .46   76.73    86.01
                   TOTAL PERENNIAL GRASS PRODUCTION =       96.93   108.66
   2  PER FORBS
        GICO         .03     1.
              PERENNIAL FORBS =     .11      .01      .22     .52      .58

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         97.45   109.24


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
   *************************         ********************************
    OCT 15 TO APR 15 =  2.80           ARTR               23.57    26.42
    APR 15 TO JULY 1 =  1.10           CELA                1.05     1.18
    JULY 1 TO SEPT 1 =  2.19           CHVI               45.39    50.88
    SEPT 1 TO OCT 15 =  2.30           ERBR                2.80     3.14
    SEASON TOTAL     =  8.39           EROV                8.92    10.00
    LONG TERM AVERAGE=  7.18           PHHO                8.12     9.10
                                       TECA                5.46     6.12

                             TOTAL SHRUB PRODUCTION =     95.30   106.83


                                   TOTAL PRODUCTION =  192.75   216.07
                                   *********************************
    406.   RED WASH 2    25 JULY        1982      IN AGSP

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
****************************************************************************
    6  SHRUBS
         ARHO2        .01      1.
         ARTR        8.30      7.
         CHNA        1.60      1.
         CHVI         .30      3.
         ERBR         .05      1.
         PHHO        1.60      5.
         TECA         .65      2.
    3  PER GRASS
         AGSM         .17     12.    5.56     .28     1.68   26.69    29.92
         ORHY         .05      1.    1.00     .05     1.00    4.80     5.38
         POSE         .03      1.     .53     .03     1.06    2.54     2.85
         STCO        1.66     12.   26.80    1.34      .81  128.68   144.25
                   TOTAL PERENNIAL GRASS PRODUCTION = 162.71   182.40
    2  PER FORBS
         CHOO         .01      1.
             PERENNIAL FORBS =     1.35     .07     6.75    6.48     7.26

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 169.19   189.66


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    **************************          **********************************
     OCT 15 TO APR 15 =   2.80            ARTR               31.46    35.27
     APR 15 TO JULY 1 =   1.10            CHNA                 .40      .45
     JULY 1 TO SEPT 1 =   2.19            CHVI               35.80    40.13
     SEPT 1 TO OCT 15 =   2.30            ERBR                2.55     2.86
     SEASON TOTAL     =   8.39            EROV                2.19     2.45
     LONG TERM AVERAGE=   7.18            OPPO                 .86      .97
                                          PHHO                9.35    10.48
                                          SYOC                 .05      .06
                                          TECA               12.19    13.67

                              TOTAL SHRUB PRODUCTION =    94.86   106.34


                                    TOTAL PRODUCTION =  264.05   296.00
                                    ***********************************
```

```
   406.   RED WASH 2    25 JULY        1982     CUT AGSP

                            NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT    PLANT     AVE.     1X1     TOTAL     AVE.     WGT./     LBS     KGS
 CODE     NAME      PER-     ABS.    WGT.      WGT.     UNIT      PER     PER
                    CENT     PLOT    GMS/20    /PLOT    COVER     ACRE    HA.
                    COVER    FREQ.   SQ.FT.    OCCUR-   AREA
                    AREA     BASE              RENCES
                             20
***********************************************************************************
    6  SHRUBS
         ARTR      3.30       2.
         CHVI      3.15       3.
         ERBR       .01       1.
         PHHO       .40       3.
    3  PER GRASS
         AGSM       .22      11.     3.05      .15       .69   14.64    16.41
         AGSP       .24       4.    10.64      .53      2.26   51.08    57.26
         ORHY       .23       3.     3.74      .19       .83   17.95    20.12
         POSE       .08       3.      .67      .03       .42    3.21     3.60
         STCO      1.95      17.    25.00     1.25       .64  120.04   134.56
                   TOTAL PERENNIAL GRASS PRODUCTION = 206.92   231.96

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 206.92   231.96


      PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                            AND WOODY MAT FORM PLANTS
    **************************              **********************************
     OCT 15 TO APR 15 =   2.80                ARTR              7.38     8.27
     APR 15 TO JULY 1 =   1.10                CELA               .18      .20
     JULY 1 TO SEPT 1 =   2.19                CHNA              3.21     3.60
     SEPT 1 TO OCT 15 =   2.30                CHVI             23.81    26.69
     SEASON TOTAL     =   8.39                ERBR              3.38     3.78
     LONG TERM AVERAGE=   7.18                EROV              2.36     2.65
                                              PHHO              5.19     5.82
                                              TECA              7.04     7.89

                             TOTAL SHRUB PRODUCTION =   52.55    58.91


                                   TOTAL PRODUCTION =  259.47   290.87
                                   ***********************************
   1504.   ROUND TOP     20 JULY       1982     RELICT

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
  PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
  CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                    CENT    PLOT    GMS/20   /PLOT    COVER    ACRE    HA.
                    COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                    AREA    BASE             RENCES
                            20
*************************************************************************************
    6  SHRUBS
         ARTR       1.25      1.
         CHVI        .25      1.
    3  PER GRASS
         AGSP       2.18     17.  26.72    1.34      .61 128.30   143.82
         CAEL       1.85     15.   8.41     .42      .23  40.38    45.27
         KOCR        .33      6.   2.93     .15      .45  14.06    15.76
         STCO        .70      4.  11.07     .55      .79  53.15    59.58
                    TOTAL PERENNIAL GRASS PRODUCTION = 235.89   264.43

               ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 235.89   264.43


       PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
       RAIN GAUGE                         AND WOODY MAT FORM PLANTS
      **************************          ***********************************
       OCT 15 TO APR 15 =   2.92            ARTR              20.57    23.06
       APR 15 TO JULY 1 =   3.38            CHVI               3.14     3.52
       JULY 1 TO SEPT 1 =   1.82
       SEPT 1 TO OCT 15 =   3.76
       SEASON TOTAL      = 11.88
       LONG TERM AVERAGE= 11.90

                               TOTAL SHRUB PRODUCTION =    23.71    26.58


                                     TOTAL PRODUCTION =  259.60   291.02
                                     **********************************
  1505.   SAND GULCH    15 JULY       1982     IN NATIVE

                         NUMBER OF PLOTS = 20
                            PLOT SIZE 1X10
PLANT    PLANT    AVE.     1X1    TOTAL    AVE.     WGT./    LBS    KGS
CODE     NAME     PER-     ABS.   WGT.     WGT.     UNIT     PER    PER
                  CENT     PLOT   GMS/20   /PLOT    COVER    ACRE   HA.
                  COVER    FREQ.  SQ.FT.   OCCUR-   AREA
                  AREA     BASE            RENCES
                           20
***********************************************************************
    6   SHRUBS
          ATGA      11.58     19. 243.15  12.16    1.05 116.75  130.88
          OPPO       1.63      3.
    3   PER GRASS
          AGSM       2.09     18.  25.24   1.26     .60 121.19  135.85
          ORHY        .05      1.    .29    .01     .32   1.39    1.56
          POSE        .25      7.   1.36    .07     .27   6.53    7.32
          SIHY        .24      2.    .79    .04     .16   3.79    4.25
                  TOTAL PERENNIAL GRASS PRODUCTION = 132.90  148.98
    5   ANN GRASS
          BRTE        .19     14.
          BRJA        .02      2.
               ANNUAL GRASSES =   4.14    .21    1.04  19.87   22.27
    4   ANN FORBS
          LEDE        .05      8.
                 ANNUAL FORBS =    .35    .02     .39   1.68    1.88

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 271.20  304.02


     PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    **************************        ***********************************
     OCT 15 TO APR 15 =  1.90          OPPO           12.35   13.85
     APR 15 TO JULY 1 =  2.35
     JULY 1 TO SEPT 1 =  1.97
     SEPT 1 TO OCT 15 =  2.95
     SEASON TOTAL     =  9.17
     LONG TERM AVERAGE=  9.03

                         TOTAL SHRUB PRODUCTION =   12.35   13.85


                              TOTAL PRODUCTION =  283.55  317.86
                              ***********************************
  1505.   SAND GULCH    15 JULY        1982     OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X10
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
***********************************************************************
    6  SHRUBS
         ATGA       2.69     16.  90.74    4.54    1.69  43.57   48.84
         LPPO        .30      2.
    3  PER GRASS
         AGSM       1.27     18.  12.51     .63     .49  60.06   67.33
         BOGR        .65      1.   2.17     .11     .17  10.41   11.67
         POSE        .22      3.    .45     .02     .10   2.16    2.42
         SCPA        .15      1.   5.62     .28    1.87  26.98   30.24
         SIHY        .05      1.    .29     .01     .29   1.39    1.56
         SPAI        .20      1.    .78     .04     .20   3.74    4.19
                   TOTAL PERENNIAL GRASS PRODUCTION = 104.74  117.41
    5  ANN GRASS
         BRTE        .74     20.
                ANNUAL GRASSES =  27.83    1.39    1.88 133.63  149.80
    4  ANN FORBS
         LARE        .01      2.
         LEDE        .02      2.
         EUSE        .01      1.
                  ANNUAL FORBS =    .30     .02     .38   1.44    1.61

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 283.38  317.67


       PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
       RAIN GAUGE                     AND WOODY MAT FORM PLANTS
     **************************       **********************************
      OCT 15 TO APR 15 =  1.90          OPPO              7.98    8.94
      APR 15 TO JULY 1 =  2.35
      JULY 1 TO SEPT 1 =  1.97
      SEPT 1 TO OCT 15 =  2.95
      SEASON TOTAL     =  9.17
      LONG TERM AVERAGE=  9.03

                           TOTAL SHRUB PRODUCTION =     7.98    8.94


                                 TOTAL PRODUCTION = 291.36  326.61
                                 **********************************
 1009.   SHOSHONI 2     7 AUGUST      1982      IN NE

                      NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1      TOTAL     AVE.     WGT./    LBS    KGS
CODE     NAME     PER-   ABS.     WGT.      WGT.     UNIT     PER    PER
                  CENT   PLOT     GMS/10    /PLOT    COVER    ACRE   HA.
                  COVER  FREQ.    SQ.FT.    OCCUR-   AREA
                  AREA   BASE               RENCES
                         10
***********************************************************************
   6  SHRUBS
        ARTR       7.20     5.
        OPPO       1.20     2.
   3  PER GRASS
        AGSM        .02     1.      .13      .01      .65    1.24      1.39
        BCGR       1.97     7.     6.13      .61      .31   58.86     65.98
        PCSE        .84     8.     1.89      .19      .23   18.15     20.35
        STCO        .32     1.     2.20      .22      .69   21.12     23.68
                 TOTAL PERENNIAL GRASS PRODUCTION =         99.37    111.39
   2  PER FORBS
        SPCO        .02     1.
             PERENNIAL FORBS =     1.30      .13     6.50   12.48     13.99

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 111.85   125.38


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    **************************           ***********************************
     OCT 15 TO APR 15 =   1.69             ARTR                34.98   39.21
     APR 15 TO JULY 1 =   3.00             OPPO                13.90   15.58
     JULY 1 TO SEPT 1 =    .95             PHHO                  .17     .19
     SEPT 1 TO OCT 15 =   2.96
     SEASON TOTAL     =   8.60
     LONG TERM AVERAGE=   8.34

                            TOTAL SHRUB PRODUCTION =      49.05   54.99


                                  TOTAL PRODUCTION =  160.90  180.37
                                  **********************************
```

```
  1009.   SHOSHONI 2     7 AUGUST      1982      IN NW

                         NUMBER OF PLOTS = 10
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.     1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME     PER-     ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT     PLOT    GMS/10   /PLOT    COVER    ACRE   HA.
                   COVER    FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA     BASE             RENCES
                            10
***************************************************************************
   6  SHRUBS
        ARTR      26.50      6.
   3  PER GRASS
        AGSM        .03      2.      .11      .01      .37    1.05      1.18
        BOGR       1.70      6.     4.84      .48      .28   46.48     52.10
        POSE        .64      4.     1.30      .13      .20   12.48     13.99
                TOTAL PERENNIAL GRASS PRODUCTION =           60.01     67.27
   2  PER FORBS
        ERPU        .10      1.
        SPCO        .02      1.
            PERENNIAL FORBS =        .70      .07      .58    6.72      7.53

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =           66.73     74.80


    PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                        AND WOODY MAT FORM PLANTS
  ***************************         ************************************
   OCT 15 TO APR 15 =  1.69             ARTR                 34.98     39.21
   APR 15 TO JULY 1 =  3.00             OPPO                 13.90     15.58
   JULY 1 TO SEPT 1 =   .95             PHHO                   .17       .19
   SEPT 1 TO OCT 15 =  2.96
   SEASON TOTAL     =  8.60
   LONG TERM AVERAGE=  8.34

                                 TOTAL SHRUB PRODUCTION =    49.05     54.99


                                       TOTAL PRODUCTION =  115.78    129.79
                                       ************************************
  1009.   SHOSHONI 2     7 AUGUST     1982     IN SE

                    NUMBER OF PLOTS = 10
                      PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT   GMS/10   /PLOT   COVER   ACRE   HA.
                  COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                  AREA   BASE            RENCES
                         10
*********************************************************************
   6  SHRUBS
        ARTR      7.40     2.
        OPPO       .60     1.
   3  PER GRASS
        AGSM       .01     1.     .05      .01     .50     .48      .54
        BOGR      2.02     7.    4.05      .41     .20   38.89    43.60
        PCSE       .23     3.     .39      .04     .17    3.74     4.19
        STCO       .16     1.    1.97      .20    1.23   18.91    21.20
                  TOTAL PERENNIAL GRASS PRODUCTION =   62.02    69.52

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   62.02    69.52


    PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                     AND WOODY MAT FORM PLANTS
   *************************       *********************************
    OCT 15 TO APR 15 =  1.69         ARTR              34.98    39.21
    APR 15 TO JULY 1 =  3.00         OPPO              13.90    15.58
    JULY 1 TO SEPT 1 =   .95         PHHO                .17      .19
    SEPT 1 TO OCT 15 =  2.96
    SEASON TOTAL     =  8.60
    LONG TERM AVERAGE=  8.34

                             TOTAL SHRUB PRODUCTION =   49.05    54.99


                                   TOTAL PRODUCTION =  111.07   124.51
                                   *********************************
   1009.   SHOSHONI 2     7 AUGUST     1982     IN SW

                      NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/10  /PLOT   COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR-  AREA
                 AREA   BASE           RENCES
                        10
***********************************************************************
    6  SHRUBS
         ARTR     17.80     5.
         PHHO       .80     1.
    3  PER GRASS
         AGSM       .30     7.    2.56    .26      .85  24.58   27.55
         BOGR       .56     3.     .86    .09      .15   8.25    9.25
         POSE       .25     3.    1.29    .13      .52  12.38   13.88
                 TOTAL PERENNIAL GRASS PRODUCTION =  45.21   50.68

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  45.21   50.68


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  1.69          ARTR           34.98   39.21
     APR 15 TO JULY 1 =  3.00          OPPO           13.90   15.58
     JULY 1 TO SEPT 1 =   .95          PHHO             .17     .19
     SEPT 1 TO OCT 15 =  2.96
     SEASON TOTAL     =  8.60
     LONG TERM AVERAGE=  8.34

                          TOTAL SHRUB PRODUCTION =   49.05   54.99


                                TOTAL PRODUCTION =   94.26  105.67
                                **********************************
 1009.   SHOSHONI 2     7 AUGUST      1982      OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT   GMS/20   /PLOT   COVER   ACRE   HA.
                  COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                  AREA   BASE            RENCES
                         20
***********************************************************************
    6  SHRUBS
         ARTR       8.35     6.
         OPPO        .20     1.
         PHHO        .10     1.
    3  PER GRASS
         AGSM        .07     4.     .69      .03      .49    3.31     3.71
         BOGR       2.22    17.   10.54      .53      .24   50.60    56.72
         POSE        .54    11.    2.06      .10      .19    9.89    11.09
         STCO        .15     2.    4.37      .22     1.51   20.98    23.52
                  TOTAL PERENNIAL GRASS PRODUCTION =        84.78    95.04
    2  PER FORBS
         SPCO        .02     2.
             PERENNIAL FORBS =      .20      .01      .67     .96     1.08
    4  ANN FORBS
         PLPA        .01     2.
                 ANNUAL FORBS =     .25      .01     1.25    1.20     1.35

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        86.94    97.46


      PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                        AND WOODY MAT FORM PLANTS
     **************************         **********************************
     OCT 15 TO APR 15 =  1.69             ARTR            138.23   154.95
     APR 15 TO JULY 1 =  3.00             OPPO              5.77     6.47
     JULY 1 TO SEPT 1 =   .95
     SEPT 1 TO OCT 15 =  2.96
     SEASON TOTAL     =  8.60
     LONG TERM AVERAGE=  8.34

                              TOTAL SHRUB PRODUCTION =  144.00   161.42


                                    TOTAL PRODUCTION =  230.94   258.88
                                    **********************************
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  1011.   SHOSHONI 4     7 AUGUST     1982     IN NE

                          NUMBER OF PLOTS = 10
                             PLOT SIZE 1X1
 PLANT    PLANT    AVE.     1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-     ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT     PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER    FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA     BASE             RENCES
                            10
***********************************************************************
    6  SHRUBS
         ARTR      10.90      4.
         OPPO       1.70      2.
         PHHO       1.23      2.
    3  PER GRASS
         AGSM        .12      5.     .66      .07     .55    6.33     7.10
         BOGR        .34      2.     .66      .07     .19    6.33     7.10
         POSE        .17      2.     .54      .05     .32    5.18     5.81
         STCO        .24      3.    1.54      .15     .64   14.78    16.57
                   TOTAL PERENNIAL GRASS PRODUCTION =       32.62    36.57
    2  PER FORBS
         SPCO        .11      5.
               PERENNIAL FORBS =     .81      .08     .74    7.77     8.71

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       40.39    45.28


     PRECIPITATION DATA                PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                        AND WOODY MAT FORM PLANTS
    **************************         ***********************************
     OCT 15 TO APR 15 =  1.48            ARTR              65.20   73.09
     APR 15 TO JULY 1 =  3.12            OPPO              85.33   95.65
     JULY 1 TO SEPT 1 =   .90
     SEPT 1 TO OCT 15 =  2.95
     SEASON TOTAL     =  8.45
     LONG TERM AVERAGE=  8.08

                              TOTAL SHRUB PRODUCTION =  150.53  168.74


                                    TOTAL PRODUCTION =  190.92  214.02
                                    **********************************
 1011.   SHOSHONI 4     7 AUGUST      1982      IN NW

                        NUMBER OF PLOTS = 10
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS     KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER     PER
                  CENT    PLOT    GMS/10   /PLOT    COVER    ACRE    HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                  AREA    BASE             RENCES
                          10
*************************************************************************
   6  SHRUBS
        ARTR       2.90      2.
        OPPO       1.50      1.
   3  PER GRASS
        AGSM        .03      1.      .14      .01      .47    1.34     1.50
        BOGR       2.11      8.     4.17      .42      .20   40.04    44.88
                  TOTAL PERENNIAL GRASS PRODUCTION =         41.38    46.39
   2  PER FORBS
        SPCO        .06      3.
              PERENNIAL FORBS =      .46      .05      .77    4.41     4.94

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         45.79    51.33


   PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
   RAIN GAUGE                          AND WOODY MAT FORM PLANTS
   **************************          **********************************
    OCT 15 TO APR 15 =  1.48             ARTR                65.20    73.09
    APR 15 TO JULY 1 =  3.12             OPPO                85.33    95.65
    JULY 1 TO SEPT 1 =   .90
    SEPT 1 TO OCT 15 =  2.95
    SEASON TOTAL     =  8.45
    LONG TERM AVERAGE=  8.08

                              TOTAL SHRUB PRODUCTION =  150.53   168.74


                                    TOTAL PRODUCTION =  196.32   220.07
                                    **********************************
   1011.   SHOSHONI 4     7 AUGUST     1982     IN SW

                          NUMBER OF PLOTS = 10
                             PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           10
***********************************************************************
    6  SHRUBS
         ARTR      5.00      3.
         OPPO      2.00      2.
    3  PER GRASS
         BOGR      2.04      8.    5.30     .53      .26   50.89    57.05
         POSE       .13      2.     .28     .03      .22    2.68     3.00
         STCO       .86      3.   13.76    1.38     1.60  132.14   148.13
                   TOTAL PERENNIAL GRASS PRODUCTION = 185.71  208.18
    2  PER FORBS
         SPCO       .03      2.
               PERENNIAL FORBS =    .21     .02      .70    2.01     2.25

            ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 187.72  210.43


      PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    **************************           **********************************
     OCT 15 TO APR 15 =  1.48              ARTR             65.20   73.09
     APR 15 TO JULY 1 =  3.12              OPPO             85.33   95.65
     JULY 1 TO SEPT 1 =   .90
     SEPT 1 TO OCT 15 =  2.95
     SEASON TOTAL     =  8.45
     LONG TERM AVERAGE=  8.08

                              TOTAL SHRUB PRODUCTION =  150.53  168.74


                                    TOTAL PRODUCTION =  338.25  379.17
                                    **********************************
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  1011.   SHOSHONI 4      7 AUGUST      1982      IN SE

                        NUMBER OF PLOTS = 10
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1    TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-   ABS.   WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT   GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER  FREQ.  SQ.FT.   OCCUR-  AREA
                   AREA   BASE            RENCES
                          10
************************************************************************
    6  SHRUBS
         ARTR     14.75     8.
         CPPO       .20     1.
         PHHO       .80     1.
    3  PER GRASS
         AGSM       .11     4.     .73      .07      .66    7.01     7.86
         BOGR       .52     2.    1.15      .12      .22   11.04    12.38
         PCSE       .10     1.     .11      .01      .11    1.05     1.18
         SIHY       .10     1.    1.04      .10     1.04    9.98    11.19
         STCO       .19     2.    1.10      .11      .58   10.56    11.84
                   TOTAL PERENNIAL GRASS PRODUCTION =      39.64    44.44
    2  PER FORBS
         TRGY       .01     1.
             PERENNIAL FORBS =     .01      .00      .10     .09      .10
    4  ANN FORBS
         PLPA       .01     1.
                  ANNUAL FORBS =   .01      .00      .10     .09      .10

        ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =           39.82    44.64


     PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    *************************       ********************************
     OCT 15 TO APR 15 =  1.48         ARTR              65.20   73.09
     APR 15 TO JULY 1 =  3.12         UPPO              85.33   95.65
     JULY 1 TO SEPT 1 =   .90
     SEPT 1 TO OCT 15 =  2.95
     SEASON TOTAL     =  8.45
     LONG TERM AVERAGE=  8.08

                              TOTAL SHRUB PRODUCTION =  150.53  168.74


                                   TOTAL PRODUCTION =  190.35  213.38
                                   **********************************
  1011.   SHOSHONI 4     7 AUGUST      1982      CUT NATIVE

                           NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT     PLANT     AVE.     1X1     TOTAL     AVE.     WGT./    LBS     KGS
 CODE      NAME      PER-     ABS.    WGT.      WGT.     UNIT     PER     PER
                     CENT     PLOT    GMS/20    /PLOT    COVER    ACRE    HA.
                     COVER    FREQ.   SQ.FT.    OCCUR-   AREA
                     AREA     BASE              RENCES
                              20
**********************************************************************
    6   SHRUBS
           ARTR        6.00      6.
           OPPO        2.20      5.
    3   PER GRASS
           AGSM         .05      2.     .66       .03      .66    3.16      3.54
           BOGR        2.25     15.    8.65       .43      .19   41.53     46.56
           POSE         .07      3.     .17       .01      .13     .81       .91
           STCO         .41      6.    7.07       .35      .87   33.94     38.05
                 TOTAL PERENNIAL GRASS PRODUCTION =              79.44     89.05
    2   PER FORBS
           SPCO         .06      6.
               PERENNIAL FORBS =        .96       .05      .80    4.60      5.16

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            84.04     94.21


      PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                            AND WOODY MAT FORM PLANTS
     *************************              **********************************
      OCT 15 TO APR 15 =  1.48                ARTR              110.88  124.29
      APR 15 TO JULY 1 =  3.12                OPPO               84.96   95.24
      JULY 1 TO SEPT 1 =   .90                PHHO                2.10    2.35
      SEPT 1 TO OCT 15 =  2.95
      SEASON TOTAL     =  8.45
      LONG TERM AVERAGE=  8.08

                               TOTAL SHRUB PRODUCTION =  197.93  221.88


                                     TOTAL PRODUCTION =  281.97  316.09
                                     **********************************
 1013.   SHOSHONI 7     7 AUGUST     1982     IN NE

                       NUMBER OF PLOTS = 10
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1    TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.   WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT   GMS/10   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.  SQ.FT.   OCCUR-  AREA
                  AREA    BASE            RENCES
                          10
***********************************************************************
   6  SHRUBS
        ARTR      16.55     7.
        CPPO        .10     1.
   3  PER GRASS
        AGSM        .10     7.     .52     .05     .52    4.99     5.59
        BOGR        .50     4.    1.19     .12     .24   11.42    12.80
        POSE        .45     7.     .55     .06     .12    5.28     5.92
        STCO        .10     3.     .77     .08     .77    7.39     8.28
                  TOTAL PERENNIAL GRASS PRODUCTION =     29.08    32.60
   2  PER FORBS
        ASPU        .01     1.
        SPCO        .01     1.
            PERENNIAL FORBS =      .16     .02     .80    1.53     1.72

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       30.61    34.31


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
  *************************            ************************************
   OCT 15 TO APR 15 =   1.55             ARTR             138.57   155.33
   APR 15 TO JULY 1 =   2.89             OPPO              14.49    16.25
   JULY 1 TO SEPT 1 =    .88             PHHO              10.57    11.85
   SEPT 1 TO OCT 15 =   2.92
   SEASON TOTAL     =   8.24
   LONG TERM AVERAGE=   8.42

                        TOTAL SHRUB PRODUCTION =  163.63   183.43


                              TOTAL PRODUCTION =  194.24   217.74
                              ***********************************
 1013.   SHOSHONI 7     7 AUGUST      1982      IN NW

                             NUMBER OF PLOTS = 10
                               PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./   LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT    PLOT    GMS/10   /PLOT   COVER   ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          10
***********************************************************************
   6  SHRUBS
       ARTR      16.60       7.
       PHHO        .35       2.
   3  PER GRASS
       AGSM        .09       5.      .54      .05      .60    5.18     5.81
       BOGR        .36       5.     1.54      .15      .43   14.78    16.57
       POSE        .52       5.      .77      .08      .15    7.39     8.28
       STCO        .11       1.      .69      .07      .63    6.62     7.42
                  TOTAL PERENNIAL GRASS PRODUCTION =          33.97    38.08
   2  PER FORBS
       SPCO        .01       1.
           PERENNIAL FORBS =         .10      .01     1.00     .96     1.08

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            34.93    39.16


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    *************************        **********************************
     OCT 15 TO APR 15 =  1.55          ARTR            138.57   155.33
     APR 15 TO JULY 1 =  2.89          OPPO             14.49    16.25
     JULY 1 TO SEPT 1 =   .88          PHHO             10.57    11.85
     SEPT 1 TO OCT 15 =  2.92
     SEASON TOTAL     =  8.24
     LONG TERM AVERAGE=  8.42

                             TOTAL SHRUB PRODUCTION =  163.63   183.43


                                   TOTAL PRODUCTION =  198.56   222.58
                                   ********************************** 
   1013.   SHOSHONI 7     7 AUGUST     1982     IN SE

                      NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/10  /PLOT   COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        10
***********************************************************************
    6  SHRUBS
         ARTR     12.15    7.
         PHHO       .20    1.
    3  PER GRASS
         AGSM       .07    4.     .24    .02    .34   2.30    2.58
         BOGR      1.82    5.    5.98    .60    .33  57.42   64.37
         POSE       .19    2.     .08    .01    .04    .76     .85
         STCO       .04    1.     .10    .01    .25    .96    1.08
                 TOTAL PERENNIAL GRASS PRODUCTION =  61.44   68.87
    2  PER FORBS
         ASPU       .01    1.
         STCO       .01    1.
             PERENNIAL FORBS =    .01    .00    .05    .09     .10

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  61.53   68.98


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        ***********************************
     OCT 15 TO APR 15 =  1.55         ARTR          138.57  155.33
     APR 15 TO JULY 1 =  2.89         OPPO           14.49   16.25
     JULY 1 TO SEPT 1 =   .88         PHHO           10.57   11.85
     SEPT 1 TO OCT 15 =  2.92
     SEASON TOTAL     =  8.24
     LONG TERM AVERAGE=  8.42

                          TOTAL SHRUB PRODUCTION =  163.63  183.43


                                TOTAL PRODUCTION =  225.16  252.40
                                **********************************
   1013.    SHOSHONI 7      7 AUGUST      1982      IN SW

                             NUMBER OF PLOTS = 10
                               PLOT SIZE 1X1
  PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
  CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                    CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                    COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                    AREA    BASE             RENCES
                            10
*************************************************************************
    6  SHRUBS
         ARTR      6.20      4.
         OPPO       .10      1.
         PHHO       .40      1.
    3  PER GRASS
         AGSM       .04      4.     .14      .01      .35     1.34     1.50
         BOGR       .07      2.     .14      .01      .20     1.34     1.50
         POSE       .10      2.     .25      .03      .25     2.40     2.69
                    TOTAL PERENNIAL GRASS PRODUCTION =       5.08     5.69
    4  ANN FORBS
         SAIB       .01      1.
                   ANNUAL FORBS =   .01      .00      .10      .09      .10

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       5.17     5.80


       PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
       RAIN GAUGE                       AND WOODY MAT FORM PLANTS
     **************************         ********************************
      OCT 15 TO APR 15 =  1.55            ARTR           138.57  155.33
      APR 15 TO JULY 1 =  2.89            OPPO            14.49   16.25
      JULY 1 TO SEPT 1 =   .88            PHHO            10.57   11.85
      SEPT 1 TO OCT 15 =  2.92
      SEASON TOTAL     =  8.24
      LONG TERM AVERAGE=  8.42

                              TOTAL SHRUB PRODUCTION =  163.63  183.43



                                    TOTAL PRODUCTION =  168.80  189.22
                                    **********************************
  1013.   SHOSHONI 7      7 AUGUST      1982      OUT NATIVE

                           NUMBER OF PLOTS = 20
                              PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
***********************************************************************
    6  SHRUBS
         ARTR      8.28     11.
         CPPO      1.13      5.
         PHHO       .40      1.
    3  PER GRASS
         AGSM       .06      4.    1.15      .06    1.05    5.52     6.19
         BOGR      1.06      6.    3.31      .17     .16   15.89    17.81
         POSE       .43     10.    1.57      .08     .18    7.53     8.44
         SIHY       .01      1.     .06      .00     .30     .28      .31
         STCO       .31      6.    4.49      .22     .72   21.55    24.16
                   TOTAL PERENNIAL GRASS PRODUCTION =      50.77    56.91
    2  PER FORBS
         SPCO       .03      2.
               PERENNIAL FORBS =    .50      .03     .83    2.40     2.69

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =      53.17    59.60


      PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                           AND WOODY MAT FORM PLANTS
    **************************            *********************************
     OCT 15 TO APR 15 =  1.55               ARTR              132.01  147.99
     APR 15 TO JULY 1 =  2.89               OPPO               14.36   16.10
     JULY 1 TO SEPT 1 =   .88               PHHO                3.27    3.67
     SEPT 1 TO OCT 15 =  2.92
     SEASON TOTAL     =  8.24
     LONG TERM AVERAGE=  8.42

                              TOTAL SHRUB PRODUCTION =  149.65  167.75


                                    TOTAL PRODUCTION =  202.82  227.36
                                    ***********************************
  1014.   SHOSHONI 8     8 AUGUST      1982      IN NE

                         NUMBER OF PLOTS = 10
                           PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           10
**********************************************************************
    6   SHRUBS
          ARTR      3.90      4.
    3   PER GRASS
          AGSM       .18      6.    1.13      .11      .63   10.85    12.16
          BOGR      1.04      5.    1.92      .19      .18   18.43    20.66
          POSE      1.04      5.    1.25      .13      .12   12.00    13.45
                 TOTAL PERENNIAL GRASS PRODUCTION =          41.28    46.27
    4   ANN FORBS
          PLPA       .07      5.
                ANNUAL FORBS =       .27      .03      .39    2.59     2.90

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =          43.87    49.18


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
    **************************           **********************************
     OCT 15 TO APR 15 =   1.64             ARTR                75.87   85.05
     APR 15 TO JULY 1 =   2.42             OPPO                14.38   16.12
     JULY 1 TO SEPT 1 =    .98             PHHO                 1.19    1.33
     SEPT 1 TO OCT 15 =   2.83
     SEASON TOTAL     =   7.87
     LONG TERM AVERAGE=   8.26

                              TOTAL SHRUB PRODUCTION =     91.44  102.50


                                    TOTAL PRODUCTION =  135.31  151.68
                                    **********************************
  1014.    SHOSHONI 8      8 AUGUST      1982      IN NW

                        NUMBER OF PLOTS = 10
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           10
***************************************************************************
    6  SHRUBS
         ARTR     14.50      5.
         OPPO      2.00      1.
    3  PER GRASS
         AGSM       .14      4.    1.58      .16    1.13   15.17     17.01
         BOGR       .21      1.    1.34      .13     .64   12.86     14.42
         POSE       .41      5.    1.13      .11     .28   10.65     12.16
         STCO       .54      5.    3.34      .33     .62   32.07     35.95
                 TOTAL PERENNIAL GRASS PRODUCTION =        70.95     79.53

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =        70.95     79.53


    PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                       AND WOODY MAT FORM PLANTS
   *************************         **********************************
   OCT 15 TO APR 15 =  1.64            ARTR                75.87   85.05
   APR 15 TO JULY 1 =  2.42            OPPO                14.38   16.12
   JULY 1 TO SEPT 1 =   .98            PHHO                 1.19    1.33
   SEPT 1 TO OCT 15 =  2.83
   SEASON TOTAL     =  7.87
   LONG TERM AVERAGE=  8.26

                            TOTAL SHRUB PRODUCTION =    91.44  102.50


                                  TOTAL PRODUCTION =  162.39  182.04
                                  **********************************
   1014.   SHOSHONI 8     8 AUGUST    1982      IN SE

                     NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/10  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        10
***********************************************************************
    6  SHRUBS
         ARTR     32.00     7.
         OPPO       .40     1.
    3  PER GRASS
         AGSM       .07     5.    .39    .04    .56   3.74    4.19
         POSE       .52     5.   1.59    .16    .31  15.26   17.11
         STCO       .81     5.   5.15    .52    .64  49.45   55.43
                 TOTAL PERENNIAL GRASS PRODUCTION =  68.45   76.73
    4  ANN FORBS
         PLPA       .07     3.
                ANNUAL FORBS =    .23    .02    .33   2.20    2.47

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  70.65   79.20


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  1.64        ARTR              75.87   85.05
     APR 15 TO JULY 1 =  2.42        OPPO              14.38   16.12
     JULY 1 TO SEPT 1 =   .98        PHHO               1.19    1.33
     SEPT 1 TO OCT 15 =  2.83
     SEASON TOTAL     =  7.87
     LONG TERM AVERAGE=  8.26

                          TOTAL SHRUB PRODUCTION =   91.44  102.50


                                TOTAL PRODUCTION =  162.09  181.70
                                **********************************
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  1014.   SHOSHONI 8     8 AUGUST     1982     IN SW

                        NUMBER OF PLOTS = 10
                             PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT   PLOT    GMS/10   /PLOT   COVER    ACRE    HA.
                   COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA   BASE             RENCES
                          10
**********************************************************************
   6  SHRUBS
        ARTR      6.40      5.
        OPPO       .60      1.
   3  PER GRASS
        AGSM       .05      2.      .27      .03      .54   2.59     2.90
        BOGR      1.41      6.     3.19      .32      .23  30.63    34.34
        POSE       .34      4.      .66      .07      .19   6.33     7.10
        STCO      1.26      7.    13.05     1.31     1.04 125.32   140.48
                   TOTAL PERENNIAL GRASS PRODUCTION = 164.87   184.82

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 164.87   184.82


     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
   **************************            *********************************
    OCT 15 TO APR 15 =  1.64               ARTR             75.87   85.05
    APR 15 TO JULY 1 =  2.42               OPPO             14.38   16.12
    JULY 1 TO SEPT 1 =   .98               PHHO              1.19    1.33
    SEPT 1 TO OCT 15 =  2.83
    SEASON TOTAL     =  7.87
    LONG TERM AVERAGE=  8.26

                              TOTAL SHRUB PRODUCTION =    91.44   102.50


                                    TOTAL PRODUCTION =  256.31   287.32
                                    **********************************
   1014.   SHOSHONI 8      8 AUGUST     1982     CUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1     TOTAL   AVE.   WGT./   LBS    KGS
 CODE    NAME    PER-   ABS.    WGT.    WGT.   UNIT    PER    PER
                 CENT   PLOT    GMS/20  /PLOT  COVER   ACRE   HA.
                 COVER  FREQ.   SQ.FT.  OCCUR- AREA
                 AREA   BASE            RENCES
                        20
*************************************************************************
    6  SHRUBS
         ARTR     11.85     9.
         OPPO      1.55     5.
         PHHO       .30     1.
    3  PER GRASS
         AGSM       .10     7.    1.18    .06    .62    5.66    6.34
         BOGR      1.64    11.   16.33    .82    .44   78.41   87.90
         POSE       .64    10.    2.75    .14    .21   13.20   14.80
         STCO       .61    10.    8.15    .41    .67   39.13   43.86
         SIHY       .03     1.     .44    .02    .88    2.11    2.37
                 TOTAL PERENNIAL GRASS PRODUCTION =   138.51  155.27
    2  PER FORBS
         SPCO       .01     1.
             PERENNIAL FORBS =     .08    .00    .80     .38     .43
    4  ANN FORBS
         PLPA       .04     4.
                ANNUAL FORBS =     .22    .01    .31    1.05    1.18

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   139.94  156.87


      PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    **************************       ***********************************
     OCT 15 TO APR 15 =  1.64          ARTR            62.81   70.41
     APR 15 TO JULY 1 =  2.42          OPPO            23.24   26.05
     JULY 1 TO SEPT 1 =   .98          PHHO              .21     .24
     SEPT 1 TO OCT 15 =  2.83
     SEASON TOTAL     =  7.87
     LONG TERM AVERAGE=  8.26

                           TOTAL SHRUB PRODUCTION =    86.26   96.70


                                 TOTAL PRODUCTION =   226.20  253.57
                                 ***********************************
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  1015.   SHOSHONI 9      7 AUGUST      1982      IN NE

                            NUMBER OF PLOTS = 10
                             PLOT SIZE 1X1
 PLANT     PLANT     AVE.    1X1      TOTAL     AVE.    WGT./    LBS     KGS
 CODE      NAME      PER-    ABS.     WGT.      WGT.    UNIT     PER     PER
                     CENT    PLOT     GMS/10    /PLOT   COVER    ACRE    HA.
                     COVER   FREQ.    SQ.FT.    OCCUR-  AREA
                     AREA    BASE               RENCES
                             10
********************************************************************************
     6   SHRUBS
           ARTR      20.90      6.
           OPPO        .10      1.
           PHHO        .10      1.
     3   PER GRASS
           AGSM        .25      9.    1.52       .15       .61   14.59    16.36
           BOGR       1.14      7.    2.50       .25       .22   24.00    26.90
           POSE        .63      7.    1.54       .15       .24   14.78    16.57
           STCO        .11      1.     .59       .06       .54    5.66     6.34
                     TOTAL PERENNIAL GRASS PRODUCTION =          59.03    66.17

                ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         59.03    66.17


           PRECIPITATION DATA                    PRODUCTION ESTIMATES OF SHRUBS
           RAIN GAUGE                            AND WOODY MAT FORM PLANTS
         **************************              ***********************************
          OCT 15 TO APR 15 =   1.72                ARTR              184.30  206.60
          APR 15 TO JULY 1 =   3.08                OPPO               20.35   22.82
          JULY 1 TO SEPT 1 =   1.03                PHHO                6.58    7.38
          SEPT 1 TO OCT 15 =   2.64
          SEASON TOTAL      =  8.47
          LONG TERM AVERAGE=   8.35

                                TOTAL SHRUB PRODUCTION =  211.24  236.80


                                      TOTAL PRODUCTION =  270.27  302.97
                                      **********************************
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1015.   SHOSHONI 9     7 AUGUST     1982      IN NW

                       NUMBER OF PLOTS = 10
                         PLOT SIZE 1X1
PLANT    PLANT    AVE.     1X1      TOTAL     AVE.     WGT./    LBS     KGS
CODE     NAME     PER-     ABS.     WGT.      WGT.     UNIT     PER     PER
                  CENT     PLOT     GMS/10    /PLOT    COVER    ACRE    HA.
                  COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                  AREA     BASE               RENCES
                           10
*************************************************************************
   6  SHRUBS
        ARTR      16.70      8.
        OPPO        .60      1.
        PHHO        .60      2.
   3  PER GRASS
        AGSM        .12      6.      .82       .08      .68    7.87     8.82
        BOGR        .19      2.     1.05       .11      .54   10.08    11.30
        POSE        .66      6.      .57       .06      .09    5.47     6.13
                  TOTAL PERENNIAL GRASS PRODUCTION =          23.42    26.25
   2  PER FORBS
        ERPU        .04      1.
              PERENNIAL FORBS =      .13       .01      .33    1.24     1.39

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =          24.66    27.64


     PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                         AND WOODY MAT FORM PLANTS
   **************************           ***********************************
    OCT 15 TO APR 15 =  1.72              ARTR            184.30   206.60
    APR 15 TO JULY 1 =  3.08              OPPO             20.35    22.82
    JULY 1 TO SEPT 1 =  1.03              PHHO              6.58     7.38
    SEPT 1 TO OCT 15 =  2.64
    SEASON TOTAL     =  8.47
    LONG TERM AVERAGE=  8.35

                              TOTAL SHRUB PRODUCTION =  211.24   236.80


                                    TOTAL PRODUCTION =  235.90   264.45
                                    **********************************
   1015.   SHOSHONI 9     7 AUGUST      1982      IN SE

                      NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/10  /PLOT   COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        10
***********************************************************************
    6  SHRUBS
         ARTR      8.40     7.
         OPPO      1.60     2.
         PHHO       .20     1.
    3  PER GRASS
         AGSM       .13     6.   1.17    .12    .90  11.23   12.59
         BCGR       .73     4.   2.42    .24    .33  23.24   26.05
                 TOTAL PERENNIAL GRASS PRODUCTION =  34.47   38.64
    2  PER FORBS
         SPCO       .01     1.
             PERENNIAL FORBS =    .07    .01    .70    .67     .75

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  35.14   39.39


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  1.72         ARTR          184.30  206.60
     APR 15 TO JULY 1 =  3.08         OPPO           20.35   22.82
     JULY 1 TO SEPT 1 =  1.03         PHHO            6.58    7.38
     SEPT 1 TO OCT 15 =  2.64
     SEASON TOTAL     =  8.47
     LONG TERM AVERAGE=  8.35

                          TOTAL SHRUB PRODUCTION =  211.24  236.80


                                TOTAL PRODUCTION =  246.38  276.19
                                **********************************
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  1015.   SHOSHONI 9     7 AUGUST     1982      IN SW

                         NUMBER OF PLOTS = 10
                               PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT    COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                   AREA    BASE             RENCES
                           10
*****************************************************************************
    6  SHRUBS
         ARTR       5.60     3.
         PHHO        .10     1.
    3  PER GRASS
         AGSM        .25     8.    1.19      .12      .48   11.42    12.80
         BOGR        .76     4.    1.25      .13      .16   12.00    13.45
         POSE        .39     6.     .86      .09      .22    8.25     9.25
         STCO        .14     1.    1.31      .13      .94   12.58    14.10
                   TOTAL PERENNIAL GRASS PRODUCTION =       44.25    49.60
    2  PER FORBS
         SPCO        .01     1.
               PERENNIAL FORBS =    .12      .01     1.20    1.15     1.29

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =       45.40    50.89


      PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    **************************         ***********************************
     OCT 15 TO APR 15 =   1.72           ARTR              184.30   206.60
     APR 15 TO JULY 1 =   3.08           OPPO               20.35    22.82
     JULY 1 TO SEPT 1 =   1.03           PHHO                6.58     7.38
     SEPT 1 TO OCT 15 =   2.64
     SEASON TOTAL     =   8.47
     LONG TERM AVERAGE=   8.35

                              TOTAL SHRUB PRODUCTION =  211.24   236.80


                                    TOTAL PRODUCTION =  256.64   287.69
                                    ***********************************
  1015.   SHOSHONI 9      7 AUGUST      1982      OUT NATIVE

                        NUMBER OF PLOTS = 20
                         PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL     AVE.     WGT./     LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.      WGT.     UNIT      PER    PER
                   CENT    PLOT    GMS/20    /PLOT    COVER     ACRE   HA.
                   COVER   FREQ.   SQ.FT.    OCCUR-   AREA
                   AREA    BASE              RENCES
                           20
*************************************************************************
    6   SHRUBS
          ARTR      15.15     14.
          OPPO       1.25      3.
          PHHO        .60      2.
    3   PER GRASS
          AGSM        .20     14.     3.75       .19       .96    18.00     20.18
          BOGR        .73      8.     3.92       .20       .27    18.82     21.10
          POSE        .45     12.     1.34       .07       .15     6.43      7.21
          SIHY        .01      1.      .11       .01       .55      .52       .58
          STCO        .32      4.     5.11       .26       .81    24.53     27.50
                TOTAL PERENNIAL GRASS PRODUCTION =                68.30     76.56
    2   PER FORBS
          SPCO        .02      2.
             PERENNIAL FORBS =         .22       .01       .73     1.05      1.18

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =                69.35     77.74


     PRECIPITATION DATA                   PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                           AND WOODY MAT FORM PLANTS
    ***************************           *********************************
    OCT 15 TO APR 15 =   1.72               ARTR           115.76   129.77
    APR 15 TO JULY 1 =   3.08               CELA              .47      .53
    JULY 1 TO SEPT 1 =   1.03               OPPO             8.81     9.88
    SEPT 1 TO OCT 15 =   2.64               PHHO             6.16     6.91
    SEASON TOTAL     =   8.47
    LONG TERM AVERAGE=   8.35

                              TOTAL SHRUB PRODUCTION =   131.20   147.08


                                    TOTAL PRODUCTION =   200.55   224.82
                                    ***********************************
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   1017.   SHOSHONI11     8 AUGUST     1982     IN NE

                          NUMBER OF PLOTS = 10
                            PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL    AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.     WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/10   /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.   OCCUR- AREA
                 AREA   BASE            RENCES
                        10
***********************************************************************
    6  SHRUBS
         ARTR      28.00      7.
         OPPO        .20      1.
         PHHO        .20      1.
    3  PER GRASS
         AGSM        .17      5.   1.05      .11      .62   10.08    11.30
         BOGR        .51      3.   1.05      .11      .21   10.08    11.30
         POSE        .32      4.    .52      .05      .16    4.99     5.59
                 TOTAL PERENNIAL GRASS PRODUCTION =         25.15    28.19
    2  PER FORBS
         SPCO        .03      2.
             PERENNIAL FORBS =      .16      .02      .53    1.53     1.72

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =          26.68    29.91


      PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                       AND WOODY MAT FORM PLANTS
    **************************         **********************************
     OCT 15 TO APR 15 =  1.45            ARTR              117.83  132.09
     APR 15 TO JULY 1 =  2.10            OPPO                6.51    7.30
     JULY 1 TO SEPT 1 =  1.00
     SEPT 1 TO OCT 15 =  3.02
     SEASON TOTAL     =  7.57
     LONG TERM AVERAGE=  8.14

                              TOTAL SHRUB PRODUCTION =  124.34  139.39


                                    TOTAL PRODUCTION =  151.02  169.29
                                    **********************************
   1017.    SHOSHONI11      8 AUGUST     1982      IN NW

                      NUMBER OF PLOTS = 10
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/10  /PLOT   COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR-  AREA
                 AREA   BASE           RENCES
                        10
***********************************************************************
    6  SHRUBS
         ARTR       2.95     4.
         OPPO       1.00     2.
    3  PER GRASS
         AGSM        .12     7.      .81      .08      .68   7.77     8.71
         BOGR        .22     2.      .09      .01      .04    .86      .96
         CRHY        .09     1.      .53      .05      .59   5.08     5.69
         FOSE        .49     6.      .74      .07      .15   7.10     7.96
         STCO        .10     1.      .28      .03      .28   2.68     3.00
                 TOTAL PERENNIAL GRASS PRODUCTION =  23.49   26.33
    2  PER FORBS
         SPCO        .03     1.
             PERENNIAL FORBS =       .12      .01      .40   1.15     1.29

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  24.64   27.62


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        **********************************
     OCT 15 TO APR 15 =  1.45          ARTR             117.83  132.09
     APR 15 TO JULY 1 =  2.10          OPPO               6.51    7.30
     JULY 1 TO SEPT 1 =  1.00
     SEPT 1 TO OCT 15 =  3.02
     SEASON TOTAL     =  7.57
     LONG TERM AVERAGE=  8.14

                          TOTAL SHRUB PRODUCTION =  124.34  139.39


                                TOTAL PRODUCTION =  148.98  167.01
                                **********************************
```

```
  1017.   SHOSHONI11     8 AUGUST     1982     IN SE

                         NUMBER OF PLOTS = 10
                            PLOT SIZE 1X1
 PLANT   PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE    NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          10
**************************************************************************
    6  SHRUBS
         ARTR     19.00      4.
         OPPO       .80      1.
    3  PER GRASS
         AGSM       .05      3.     .43      .04      .86    4.12     4.62
         BOGR      1.49      8.    2.37      .24      .16   22.76    25.51
         POSE       .19      2.     .13      .01      .07    1.24     1.39
         STCO       .07      1.     .07      .01      .10     .67      .75
                  TOTAL PERENNIAL GRASS PRODUCTION =        28.79    32.27
    2  PER FORBS
         SPCO       .03      3.
             PERENNIAL FORBS =      .15      .02      .50    1.44     1.61

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =          30.23    33.89


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    *************************         **********************************
     OCT 15 TO APR 15 =  1.45           ARTR           117.83  132.09
     APR 15 TO JULY 1 =  2.10           OPPO             6.51    7.30
     JULY 1 TO SEPT 1 =  1.00
     SEPT 1 TO OCT 15 =  3.02
     SEASON TOTAL     =  7.57
     LONG TERM AVERAGE=  8.14

                              TOTAL SHRUB PRODUCTION =  124.34  139.39


                                    TOTAL PRODUCTION =  154.57  173.27
                                    ***********************************
  1017.   SHOSHONI11      8 AUGUST      1982      IN SW

                          NUMBER OF PLOTS = 10
                            PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT    PLOT    GMS/10   /PLOT   COVER    ACRE   HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           10
***********************************************************************
    6  SHRUBS
         ARTR      14.40      7.
         OPPO        .71      2.
    3  PER GRASS
         AGSM        .06      5.   0.00     0.00     0.00     0.00     0.00
         POSE        .32      4.    .52      .05      .16     4.99     5.59
                   TOTAL PERENNIAL GRASS PRODUCTION =         4.99     5.59
    2  PER FORBS
         SPCO        .01      2.
              PERENNIAL FORBS =    0.00     0.00     0.00     0.00     0.00

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =           4.99     5.59


     PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    **************************          **********************************
     OCT 15 TO APR 15 =  1.45             ARTR            117.83  132.09
     APR 15 TO JULY 1 =  2.10             OPPO              6.51    7.30
     JULY 1 TO SEPT 1 =  1.00
     SEPT 1 TO OCT 15 =  3.02
     SEASON TOTAL     =  7.57
     LONG TERM AVERAGE=  8.14

                              TOTAL SHRUB PRODUCTION =  124.34  139.39


                                    TOTAL PRODUCTION =  129.33  144.98
                                    **********************************
  1017.   SHOSHONI11     8 AUGUST      1982      OUT NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS     KGS
 CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER     PER
                   CENT    PLOT    GMS/20   /PLOT   COVER    ACRE    HA.
                   COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA    BASE             RENCES
                           20
****************************************************************************
    6  SHRUBS
         ARTR     10.05       9.
         OPPO       .58       3.
    3  PER GRASS
         AGSM       .14      12.    2.53      .13      .94   12.14    13.61
         BOGR      1.51      12.    5.59      .28      .19   26.84    30.09
         POSE       .53      11.    0.00     0.00     0.00    0.00     0.00
                   TOTAL PERENNIAL GRASS PRODUCTION =         38.98    43.70
    2  PER FORBS
         SPCO       .01       1.
             PERENNIAL FORBS =       .11      .01     1.10     .52      .58
    4  ANN FORBS
         PLPA       .01       1.
                 ANNUAL FORBS =      .05      .00      .50     .24      .27

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =            39.74    44.55



     PRECIPITATION DATA                  PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                          AND WOODY MAT FORM PLANTS
   **************************            ***********************************
    OCT 15 TO APR 15 =  1.45               ARTR              58.55    65.64
    APR 15 TO JULY 1 =  2.10               OPPO               8.11     9.09
    JULY 1 TO SEPT 1 =  1.00
    SEPT 1 TO OCT 15 =  3.02
    SEASON TOTAL      =7.57
    LONG TERM AVERAGE=  8.14

                              TOTAL SHRUB PRODUCTION =       66.66    74.73


                                    TOTAL PRODUCTION =  106.40   119.27
                                    **********************************
  2009.   SMILO           6 JUNE        1982      IN NATIVE

                     NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1      TOTAL    AVE.    WGT./    LBS     KGS
CODE     NAME     PER-    ABS.     WGT.     WGT.    UNIT     PER     PER
                  CENT    PLOT     GMS/20   /PLOT   COVER    ACRE    HA.
                  COVER   FREQ.    SQ.FT.   OCCUR-  AREA
                  AREA    BASE              RENCES
                          20
*************************************************************************
   6  SHRUBS
        ARTR      12.75      9.
        OPPO        .04      1.
   3  PER GRASS
        AGSM        .15      9.    2.08      .10      .69    9.98    11.19
        BOGR        .40      4.    1.39      .07      .18    6.67     7.48
        POSE       1.19     19.    3.29      .16      .14   15.79    17.70
        SIHY        .09      2.     .20      .01      .12     .96     1.08
        STCO        .15      2.    1.10      .06      .37    5.28     5.92
                  TOTAL PERENNIAL GRASS PRODUCTION =       38.68    43.36

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =         38.68    43.36


    PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
    RAIN GAUGE                         AND WOODY MAT FORM PLANTS
   **************************          *********************************
    OCT 15 TO APR 15 =  3.07             ARTR              203.51  228.13
    APR 15 TO JULY 1 =  3.55             OPPO               15.30   17.15
    JULY 1 TO SEPT 1 =  1.47
    SEPT 1 TO OCT 15 =  2.65
    SEASON TOTAL     = 10.74
    LONG TERM AVERAGE=  9.31

                               TOTAL SHRUB PRODUCTION =  218.81  245.28


                                     TOTAL PRODUCTION =  257.49  288.64
                                     ******************************
   2009.   SMILO         22 JUNE       1982     CUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT   COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR-  AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR       .95     2.
    3  PER GRASS
         AGSM       .44     9.   7.42    .37    .84   35.62   39.93
         POSE      1.32    16.   8.01    .40    .30   38.46   43.11
         SIHY       .68     5.  10.42    .52    .77   50.03   56.08
         STCO       .81     7.  25.06   1.25   1.55  120.33  134.89
                 TOTAL PERENNIAL GRASS PRODUCTION = 244.44   274.02
    5  ANN GRASS
       - BRTE       .73     7.
         VUOC       .01     1.
              ANNUAL GRASSES =  30.17   1.51   2.05  144.86  162.39
    4  ANN FORBS
         PLPA       .01     1.
                ANNUAL FORBS =    .03    .00    .15     .14     .16

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 389.44   436.56


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  3.07         ARTR           206.85   231.88
     APR 15 TO JULY 1 =  3.55         OPPO            33.15    37.16
     JULY 1 TO SEPT 1 =  1.47         PHHO            11.04    12.38
     SEPT 1 TO OCT 15 =  2.65
     SEASON TOTAL     = 10.74
     LONG TERM AVERAGE=  9.31

                          TOTAL SHRUB PRODUCTION =  251.05   281.42


                                TOTAL PRODUCTION =  640.49   717.98
                                ***********************************
   2009.   SMILO         22 JUNE        1982     IN SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.    WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.    UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT   COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         OPPO       .03     1.
    3  PER GRASS
         AGSM      1.07    18.  47.66   2.38   2.24 228.84  256.53
         BOGR       .55     2.   5.39    .27    .49  25.88   29.01
         POFE       .15     1.    .84    .04    .28   4.03    4.52
         PCSE       .21     5.   1.93    .10    .46   9.26   10.38
         STCO       .73     4.  33.52   1.68   2.31 160.95  180.42
                 TOTAL PERENNIAL GRASS PRODUCTION = 428.96  480.86
    5  ANN GRASS
         BRTE       .89    18.
         VUOC       .21    11.
              ANNUAL GRASSES =  55.74   2.79   2.52 267.64  300.02
    4  ANN FORBS
         DEPI       .01     1.
         PLPA       .03     1.
                ANNUAL FORBS =    .52    .03    .87   2.49    2.79

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 699.09  783.68


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  3.07         ARTR           20.50   22.98
     APR 15 TO JULY 1 =  3.55         OPPO            9.31   10.43
     JULY 1 TO SEPT 1 =  1.47
     SEPT 1 TO OCT 15 =  2.65
     SEASON TOTAL     = 10.74
     LONG TERM AVERAGE=  9.31

                          TOTAL SHRUB PRODUCTION =   29.81   33.42


                                TOTAL PRODUCTION = 728.90  817.10
                                **********************************
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  2009.   SMILO          23 JUNE        1983     OUT SPRAY

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
PLANT    PLANT    AVE.    1X1     TOTAL    AVE.    WGT./    LBS    KGS
CODE     NAME     PER-    ABS.    WGT.     WGT.    UNIT     PER    PER
                  CENT    PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                  COVER   FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA    BASE             RENCES
                          20
*****************************************************************************
    6  SHRUBS
         ARTR       .05      1.
    3  PER GRASS
         AGSM      1.79     20.   93.84    4.69     2.62 450.59   505.11
         POSE      1.28     16.    8.67     .43      .34  41.63    46.67
         STCO       .01      1.    2.34     .12    11.70  11.23    12.59
                  TOTAL PERENNIAL GRASS PRODUCTION = 503.45   564.37
    5  ANN GRASS
         BRTE       .51     18.
         VUOC       .15     15.
               ANNUAL GRASSES =   23.85    1.19     1.81 114.52   128.38
    4  ANN FORBS
         DEPI       .02      2.
         PLPA       .09      5.
                 ANNUAL FORBS =     .34     .02      .17   1.63     1.83

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 619.60   694.57


     PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    *************************        ********************************
    OCT 15 TO APR 15 =   3.07          ARTR              12.71    14.25
    APR 15 TO JULY 1 =   3.55          OPPO              17.89    20.06
    JULY 1 TO SEPT 1 =   1.47
    SEPT 1 TO OCT 15 =   2.65
    SEASON TOTAL     =  10.47
    LONG TERM AVERAGE=   9.31

                         TOTAL SHRUB PRODUCTION =   30.60    34.31


                              TOTAL PRODUCTION =  650.20   728.88
                              *********************************
  1005.   SWEETWATER    24 JULY        1982     IN ARNO

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                COVER  FREQ.  SQ.FT.  OCCUR- AREA
                AREA   BASE           RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARNO      5.58     7.
        CHVI       .20     1.
        PHHO       .05     1.
        TECA      1.80     3.
   3  PER GRASS
        AGSM       .31    13.    5.37     .27    .88  25.78   28.90
        CAEL      1.52    12.   14.31     .72    .47  68.71   77.02
        KOCR       .33     4.    4.24     .21    .65  20.35   22.81
        POSE       .08     1.     .84     .04    .56   4.03    4.52
        STCO       .78     9.    7.02     .35    .45  33.70   37.78
                TOTAL PERENNIAL GRASS PRODUCTION = 152.57  171.03
   2  PER FORBS
        COPA       .56    19.
            PERENNIAL FORBS =  23.43    1.17    2.07 112.50  126.11

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 265.07  297.14


     PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                    AND WOODY MAT FORM PLANTS
   **************************      **********************************
    OCT 15 TO APR 15 =  1.75         ANDI                .93    1.04
    APR 15 TO JULY 1 =  2.66         ARFR                .69     .77
    JULY 1 TO SEPT 1 =   .80         ARNO             121.66  136.38
    SEPT 1 TO OCT 15 =  2.70         CHVI               2.60    2.91
    SEASON TOTAL     =  7.91         EROV                .65     .72
    LONG TERM AVERAGE=  8.80         LEPU                .24     .27
                                     PHHO               2.75    3.08
                                     TECA              11.76   13.18

                         TOTAL SHRUB PRODUCTION =  141.27  158.36


                               TOTAL PRODUCTION =  406.34  455.50
                               **********************************
   1005.   SWEETWATER    24 JULY       1982     CUT ARNO

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARNO      7.05     7.
         CELA      1.90     3.
         CHVI      1.75     1.
         LEPU       .36     2.
         PHHO       .29     2.
         TECA       .60     2.
    3  PER GRASS
         AGSM       .04     4.     .70    .04   1.00   3.36    3.77
         CAEL       .67     7.    4.04    .20    .30  19.39   21.74
         KOCR      1.48    14.   12.08    .60    .41  58.00   65.02
         POSE       .08     2.     .78    .04    .52   3.74    4.19
         STCO      2.02    15.   26.21   1.31    .65 125.85  141.08
                 TOTAL PERENNIAL GRASS PRODUCTION = 210.34   235.79
    2  PER FORBS
         ASPU       .04     3.
         PSTE       .15     9.
             PERENNIAL FORBS =    2.80    .14    .76  13.44   15.07

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 223.78   250.86


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  1.75         ANDI              .70     .78
     APR 15 TO JULY 1 =  2.66         ARFR             1.38    1.54
     JULY 1 TO SEPT 1 =   .80         ARNO           173.15  194.10
     SEPT 1 TO OCT 15 =  2.70         ASSP            32.73   36.69
     SEASON TOTAL     =  7.91         CHNA             4.00    4.49
     LONG TERM AVERAGE=  8.80         CHVI            10.22   11.45
                                      LEPU             1.38    1.55
                                      OPPO             1.01    1.13
                                      PHHO            10.02   11.23
                                      TECA             1.64    1.84

                          TOTAL SHRUB PRODUCTION =   236.23  264.61


                                TOTAL PRODUCTION =   460.01  515.67
                                ***********************************
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  1005.   SWEETWATER    24 JULY       1982     IN ARTR

                     NUMBER OF PLOTS = 20
                       PLOT SIZE 1X1
PLANT   PLANT   AVE.   1X1   TOTAL   AVE.   WGT./  LBS    KGS
CODE    NAME    PER-   ABS.  WGT.    WGT.   UNIT   PER    PER
                CENT   PLOT  GMS/20  /PLOT  COVER  ACRE   HA.
                COVER  FREQ. SQ.FT.  OCCUR- AREA
                AREA   BASE          RENCES
                       20
***********************************************************************
   6  SHRUBS
        ARTR      5.75    5.
        CHVI      4.40   11.
        EROV       .15    1.
        PHHO       .90    5.
        LEPU      1.15    2.
        TECA       .30    1.
   3  PER GRASS
        AGSM       .44   17.   5.89     .29     .67  28.28   31.70
        CAEL      1.23    9.   5.18     .26     .21  24.87   27.88
        KOCR       .57    9.   5.76     .29     .51  27.65   31.00
        POSE       .07    2.    .44     .02     .34   2.11    2.37
        STCO      1.44   13.  18.47     .92     .64  88.68   99.41
                TOTAL PERENNIAL GRASS PRODUCTION = 171.59  192.35
   2  PER FORBS
        ASMI       .03    2.
        PSTE       .07    8.
            PERENNIAL FORBS =  1.66     .08     .92   7.97    8.93

          ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 179.56  201.29


     PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                     AND WOODY MAT FORM PLANTS
    **************************      ***********************************
     OCT 15 TO APR 15 =  1.75         ANDI               4.03    4.52
     APR 15 TO JULY 1 =  2.66         ARTR             123.50  138.44
     JULY 1 TO SEPT 1 =   .80         CHVI               9.52   10.68
     SEPT 1 TO OCT 15 =  2.70         EROV               4.84    5.43
     SEASON TOTAL     =  7.91         LEPU               1.91    2.14
     LONG TERM AVERAGE=  8.80         OPPO               6.00    6.72
                                      PHHO              16.21   18.17
                                      TECA                .93    1.05

                        TOTAL SHRUB PRODUCTION =  166.95  187.15


                              TOTAL PRODUCTION =  346.51  388.44
                              ***********************************
  1005.   SWEETWATER    24 JULY       1982     OUT ARTR

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT   PLANT   AVE.     1X1    TOTAL    AVE.    WGT./    LBS    KGS
 CODE    NAME    PER-     ABS.   WGT.     WGT.    UNIT     PER    PER
                 CENT     PLOT   GMS/20   /PLOT   COVER    ACRE   HA.
                 COVER    FREQ.  SQ.FT.   OCCUR-  AREA
                 AREA     BASE            RENCES
                          20
**********************************************************************
   6  SHRUBS
        ARFR      .05      1.
        ARNO      .60      1.
        ARTR     6.60      7.
        CHVI     1.00      3.
        LEPU      .75      1.
        PHHO      .80      4.
   3  PER GRASS
        AGSM      .50     18.    8.37     .42     .85    40.19    45.05
        CAEL     1.28     15.    7.99     .40     .31    38.36    43.00
        KOCR      .24      7.    6.44     .32    1.32    30.92    34.66
        POSE      .16      3.     .53     .03     .17     2.54     2.85
        STCO      .76      7.   15.24     .76    1.01    73.17    82.02
                 TOTAL PERENNIAL GRASS PRODUCTION = 185.18   207.59
   2  PER FORBS
        SPCO      .02      1.
           PERENNIAL FORBS =      .25     .01     .83     1.20     1.35

         ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 186.38   208.93


     PRECIPITATION DATA             PRODUCTION ESTIMATES OF SHRUBS
     RAIN GAUGE                     AND WOODY MAT FORM PLANTS
   *************************        **********************************
    OCT 15 TO APR 15 =  1.75          ANDI               6.02     6.75
    APR 15 TO JULY 1 =  2.66          ARFR               8.26     9.26
    JULY 1 TO SEPT 1 =   .80          ARTR              93.40   104.71
    SEPT 1 TO OCT 15 =  2.70          ASSP               1.26     1.41
    SEASON TOTAL     =  7.91          CHVI              32.95    36.93
    LONG TERM AVERAGE=  8.80          EROV               2.26     2.53
                                      LEPU                .36      .40
                                      OPPO               9.97    11.18
                                      PHHO              14.54    16.30

                              TOTAL SHRUB PRODUCTION =  169.02   189.47


                                    TOTAL PRODUCTION =  355.40   398.41
                                    **********************************
   2010.   TWO MI HIL     7 JULY       1982     IN NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X10
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ATGA      4.92     19. 351.01  17.55    3.57 168.54  188.93
    3  PER GRASS
         AGCR       .06      3.  94.16   4.71   85.60  45.21   50.68
         PCSE       .93     20. 159.36   7.97    8.56  76.51   85.77
         SIHY      1.07     20. 508.34  25.42   23.75 244.08  273.61
         CRHY       .01      1.    .50    .03    5.00    .24     .27
                 TOTAL PERENNIAL GRASS PRODUCTION = 366.04  410.33
    2  PER FORBS
         AGGL       .02      3.
         ALTE       .02      8.
         MAGL       .78      4.
         MACA       .07      3.
         MAGR       .00      2.
         TAOF       .00      1.
         TRDU       .01      3.
         VINU       .00      1.
             PERENNIAL FORBS =   73.79   3.69    4.11  35.43   39.72
    5  ANN GRASS
         BRTE       .00      1.
         BRJA       .01      4.
              ANNUAL GRASSES =    2.13    .11   12.53   1.02    1.14
    4  ANN FORBS
         HEAN       .00      3.
                ANNUAL FORBS =     .05    .00    1.67    .02     .02

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 571.05  640.15


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        **********************************
     OCT 15 TO APR 15 =  4.24           ARTR                 .12     .13
     APR 15 TO JULY 1 =  4.15
     JULY 1 TO SEPT 1 =  1.05
     SEPT 1 TO OCT 15 =  2.75
     SEASON TOTAL     = 12.19
     LONG TERM AVERAGE=  9.64

                          TOTAL SHRUB PRODUCTION =       .12     .13


                                TOTAL PRODUCTION = 571.17  640.28
                                **********************************
   2010.   TWO MI HIL     7 JULY       1982     CUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X10
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      2.75      4.
         ATGA     12.21     20. 726.82  36.34   2.98 348.99  391.22
    3  PER GRASS
         ORHY       .03      5.  12.30    .62  20.50   5.90    6.61
         POSE       .35     17.  36.57   1.83   5.17  17.55   19.67
         SIHY       .50     20. 101.54   5.08  10.22  48.75   54.65
                 TOTAL PERENNIAL GRASS PRODUCTION =  72.20   80.94
    2  PER FORBS
         AGGL       .00      2.
         ALTE       .00      4.
         MAGL       .00      1.
         MAGR       .02     13.
         MUDI       .00      2.
         TAOF       .00      2.
         VINU       .08     11.
             PERENNIAL FORBS =  38.10   1.91  17.48  18.29   20.50
    5  ANN GRASS
         BRJA       .01      6.
              ANNUAL GRASSES =   6.19    .31  26.91   2.97    3.33
    4  ANN FORBS
         CAMI       .00      4.
         HEAN       .03     18.
         LERE       .07     14.
         OECO       .00      3.
                ANNUAL FORBS =  17.92    .90   8.53   8.60    9.64

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 451.05  505.63


      PRECIPITATION DATA            PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                    AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  4.24         ARTR            8.67    9.72
     APR 15 TO JULY 1 =  4.15
     JULY 1 TO SEPT 1 =  1.05
     SEPT 1 TO OCT 15 =  2.75
     SEASON TOTAL     = 12.19
     LONG TERM AVERAGE=  9.64

                          TOTAL SHRUB PRODUCTION =    8.67    9.72


                                TOTAL PRODUCTION =  459.72  515.34
                                **********************************
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  1006.   UPPER GOVT    25 JUNE        1982      IN NATIVE

                        NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT   PLANT    AVE.   1X1     TOTAL    AVE.    WGT./   LBS    KGS
 CODE    NAME     PER-   ABS.    WGT.     WGT.    UNIT    PER    PER
                  CENT   PLOT    GMS/20   /PLOT   COVER   ACRE   HA.
                  COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                  AREA   BASE             RENCES
                         20
*******************************************************************
   6  SHRUBS
        ARTR       5.35    10.
        OPPO        .01     1.
        PHHO        .12     6.
   3  PER GRASS
        AGSM        .56    19.    4.86     .24     .43  23.33    26.15
        KOCR       1.15    10.    9.26     .46     .40  44.46    49.84
        POSE        .90    17.    2.55     .13     .14  12.24    13.72
                  TOTAL PERENNIAL GRASS PRODUCTION =    80.03    89.71
   2  PER FORBS
        ERPU        .03     1.
        SPCO        .03     2.
               PERENNIAL FORBS =     .56     .03     .51   2.68     3.00

             ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =   82.71    92.72


        PRECIPITATION DATA               PRODUCTION ESTIMATES OF SHRUBS
        RAIN GAUGE                       AND WOODY MAT FORM PLANTS
       **************************        ********************************
        OCT 15 TO APR 15 =   1.71          ARTR             116.81  130.95
        APR 15 TO JULY 1 =   3.10          OPPO               3.75    4.21
        JULY 1 TO SEPT 1 =    .90          PHHO               5.37    6.01
        SEPT 1 TO OCT 15 =   2.50
        SEASON TOTAL     =   8.21
        LONG TERM AVERAGE=   9.21

                           TOTAL SHRUB PRODUCTION =   125.93  141.17


                                TOTAL PRODUCTION =   208.64  233.89
                                **********************************
   1006.   UPPER GOVT    25 JUNE       1982     OUT NATIVE

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      6.51     8.
         OPPO       .08     1.
         PHHO       .93    10.
    3  PER GRASS
         AGSM       .56    20.   4.87    .24    .44  23.38   26.21
         KOCR       .27    10.   2.04    .10    .38   9.79   10.97
         PCSE       .92    14.   2.38    .12    .13  11.42   12.80
                 TOTAL PERENNIAL GRASS PRODUCTION =  44.59   49.99
    2  PER FORBS
         ANDI       .01     1.
         CRAC       .03     2.
         VIAM       .02     2.
             PERENNIAL FORBS =    .08    .00    .08    .38     .43

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  44.97   50.41


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************        **********************************
     OCT 15 TO APR 15 =   1.71          ARTR           178.94  200.60
     APR 15 TO JULY 1 =   3.10          OPPO             6.40    7.17
     JULY 1 TO SEPT 1 =    .90          PHHO            14.12   15.82
     SEPT 1 TO OCT 15 =   2.50
     SEASON TOTAL     =   8.21
     LONG TERM AVERAGE=   9.21

                          TOTAL SHRUB PRODUCTION =   199.46  223.59


                                TOTAL PRODUCTION =   244.43  274.00
                                **********************************
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  1006.   UPPER GOVT    25 JUNE        1982      IN SPRAY

                       NUMBER OF PLOTS = 20
                          PLOT SIZE 1X1
 PLANT    PLANT    AVE.   1X1     TOTAL    AVE.    WGT./    LBS    KGS
 CODE     NAME     PER-   ABS.    WGT.     WGT.    UNIT     PER    PER
                   CENT   PLOT    GMS/20   /PLOT   COVER    ACRE   HA.
                   COVER  FREQ.   SQ.FT.   OCCUR-  AREA
                   AREA   BASE             RENCES
                          20
*******************************************************************************
    6  SHRUBS
          ANDI       3.00      2.
          ARTR       3.15      7.
          OPPO        .05      1.
          PHHO        .10      2.
    3  PER GRASS
          AGSM        .44     17.    9.58      .48     1.09   46.00     51.57
          KOCR       2.13     15.   17.79      .89      .42   85.42     95.76
          POSE        .49      9.    1.10      .06      .11    5.28      5.92
          STCO        .52      7.    5.62      .28      .55   26.98     30.24
                   TOTAL PERENNIAL GRASS PRODUCTION = 163.68  183.49
    2  PER FORBS
          TRDU        .04      2.
               PERENNIAL FORBS =     .30      .02      .43    1.44      1.61

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 165.12  185.10


      PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                         AND WOODY MAT FORM PLANTS
    *************************            *********************************
     OCT 15 TO APR 15 =  1.71              ARTR               34.21   38.35
     APR 15 TO JULY 1 =  3.10              OPPO                1.82    2.04
     JULY 1 TO SEPT 1 =   .90              PHHO                 .21     .24
     SEPT 1 TO OCT 15 =  2.50
     SEASON TOTAL     =  8.21
     LONG TERM AVERAGE=  9.21

                              TOTAL SHRUB PRODUCTION =   36.24   40.62


                                    TOTAL PRODUCTION =  201.36  225.72
                                    ******************************
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   1006.   UPPER GOVT    25 JUNE       1982     OUT SPRAY

                      NUMBER OF PLOTS = 20
                        PLOT SIZE 1X1
 PLANT   PLANT   AVE.   1X1    TOTAL   AVE.   WGT./   LBS   KGS
 CODE    NAME    PER-   ABS.   WGT.    WGT.   UNIT    PER   PER
                 CENT   PLOT   GMS/20  /PLOT  COVER   ACRE  HA.
                 COVER  FREQ.  SQ.FT.  OCCUR- AREA
                 AREA   BASE           RENCES
                        20
***********************************************************************
    6  SHRUBS
         ARTR      4.64   12.
         PHHO       .33    7.
    3  PER GRASS
         AGSM       .74   20.   5.27    .26    .35  25.30   28.36
         KOCR       .86   13.   3.34    .17    .19  16.03   17.97
         POSE      1.78   19.   3.82    .19    .11  18.34   20.56
                 TOTAL PERENNIAL GRASS PRODUCTION =  59.67   66.89
    2  PER FORBS
         ERPU       .03    1.
         SPCO       .16    6.
             PERENNIAL FORBS =    .77    .04    .21   3.69    4.14

           ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =  63.36   71.03


      PRECIPITATION DATA              PRODUCTION ESTIMATES OF SHRUBS
      RAIN GAUGE                      AND WOODY MAT FORM PLANTS
    **************************      **********************************
     OCT 15 TO APR 15 =  1.71         ARTR           65.23   73.12
     APR 15 TO JULY 1 =  3.10         OPPO           10.02   11.24
     JULY 1 TO SEPT 1 =   .90         PHHO           14.52   16.27
     SEPT 1 TO OCT 15 =  2.50
     SEASON TOTAL     =  8.21
     LONG TERM AVERAGE=  9.21

                          TOTAL SHRUB PRODUCTION =   89.77  100.63


                                TOTAL PRODUCTION =  153.13  171.66
                                **********************************
```

```
  2006.   WEST PAST       7 JULY        1982      IN NATIVE

                          NUMBER OF PLOTS = 20
                            PLOT SIZE 1X10
 PLANT    PLANT     AVE.    1X1     TOTAL    AVE.     WGT./    LBS    KGS
 CODE     NAME      PER-    ABS.    WGT.     WGT.     UNIT     PER    PER
                    CENT    PLOT    GMS/20   /PLOT    COVER    ACRE   HA.
                    COVER   FREQ.   SQ.FT.   OCCUR-   AREA
                    AREA    BASE             RENCES
                            20
*********************************************************************************
    6  SHRUBS
         ARPE          .49     2.
         ARSP         6.08    19.
         ATGA         9.13    20.  257.00   12.85     1.41  123.40   138.33
         OPPO         1.17    13.
    3  PER GRASS
         BOGR          .01     2.      .26     .01    1.53    1.24     1.39
         CRHY          .18    19.     8.62     .43    2.34   41.39    46.40
         POSE          .19    16.     4.94     .25    1.33   23.72    26.59
         SIHY          .04    13.     1.76     .09    2.44    8.45     9.47
         SPCR          .00     1.      .08     .00    2.67     .38      .43
                    TOTAL PERENNIAL GRASS PRODUCTION =       75.18    84.28

              ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION =      198.58   222.61


       PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
       RAIN GAUGE                         AND WOODY MAT FORM PLANTS
     **************************           ***********************************
      OCT 15 TO APR 15 =   1.28             ARPE                 24.30    27.24
      APR 15 TO JULY 1 =   1.58             ARSP                 18.03    20.21
      JULY 1 TO SEPT 1 =   1.55             OPPO                 16.65    18.66
      SEPT 1 TO OCT 15 =   1.30
      SEASON TOTAL     =   5.71
      LONG TERM AVERAGE=   5.72

                               TOTAL SHRUB PRODUCTION =      58.98    66.12


                                     TOTAL PRODUCTION =  257.56   288.73
                                     ***********************************
  2006.   WEST PAST        7 JULY          1982       OUT NATIVE

                          NUMBER OF PLOTS = 20
                             PLOT SIZE 1X10
 PLANT     PLANT     AVE.     1X1      TOTAL     AVE.     WGT./     LBS     KGS
 CODE      NAME      PER-     ABS.     WGT.      WGT.     UNIT      PER     PER
                     CENT     PLOT     GMS/20    /PLOT    COVER     ACRE    HA.
                     COVER    FREQ.    SQ.FT.    OCCUR-   AREA
                     AREA     BASE               RENCES
                              20
*********************************************************************************
     6  SHRUBS
          ARSP       4.55      20.
          ATGA       2.04      20.    67.43      3.37     1.65     32.37    36.29
          OPPO       1.31      15.
     3  PER GRASS
          BOGR        .09       1.     2.59       .13     1.48     12.43    13.93
          ORHY        .16      19.    10.39       .52     3.21     49.88    55.92
          POSE        .58      20.    14.73       .74     1.26     70.72    79.28
          SIHY        .06      16.     4.05       .20     3.58     19.44    21.79
          SPCR        .23      15.     5.34       .27     1.18     25.64    28.74
                     TOTAL PERENNIAL GRASS PRODUCTION = 178.11   199.66

                ANNUAL HERBACEOUS(NON-WOODY)PRODUCTION = 210.48   235.95


          PRECIPITATION DATA                 PRODUCTION ESTIMATES OF SHRUBS
          RAIN GAUGE                         AND WOODY MAT FORM PLANTS
        **************************           **********************************
         OCT 15 TO APR 15 =  1.28              ARPE             43.59    48.86
         APR 15 TO JULY 1 =  1.58              ARSP              6.73     7.54
         JULY 1 TO SEPT 1 =  1.55              OPPO             16.40    18.38
         SEPT 1 TO OCT 15 =  1.30
         SEASON TOTAL     =  5.71
         LONG TERM AVERAGE=  5.72

                               TOTAL SHRUB PRODUCTION =    66.71    74.79


                                     TOTAL PRODUCTION =  277.19   310.73
                                     ************************************
         PRECIPITATION DATA
         RAIN GAUGE
       **************************
         OCT 15 TO APR 15 =
         APR 15 TO JULY 1 =
         JULY 1 TO SEPT 1 =
         SEPT 1 TO OCT 15 =
         SEASON TOTAL     =
         LONG TERM AVERAGE=
```

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